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THE GIFT OF
Secretary of State

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JOHN L. THOMPSON

FIFTY-THIRD ANNUAL REPORT

OF THE

Indiana State Board of Agriculture

VOLUME XLV—1903-04

INCLUDING THE

Proceedings of the Annual Meeting, 1904, Reports of County and District Societies
State Meetings of Swine Breeders, Corn Growers' Association, Farmers'
Institutes, Experiment Station, Farmers' Mutual Insurance
Companies Union, State Dairy Association,
Cattle Breeders' Associations, Etc.

TO THE GOVERNOR

INDIANAPOLIS:
WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING
1904

THE STATE OF INDIANA,
EXECUTIVE DEPARTMENT,
INDIANAPOLIS, September 30, 1904.

Received by the Governor, examined and referred to the Auditor of State for verification of the financial statement.

OFFICE OF AUDITOR OF STATE,
INDIANAPOLIS, October 3, 1904.

The within report, so far as the same relates to moneys drawn from the State Treasury, viz.: $10,000 named in the within statement, has been examined and found correct.

D. E. SHERRICK,
Auditor of State.

October 3, 1904.

Returned by the Auditor of State, with above certificate, and transmitted to Secretary of State for publication, upon the order of the Board of Commissioners of Public Printing and Binding.

GEO. B. LOCKWOOD,
Private Secretary.

Filed in the office of the Secretary of State of the State of Indiana, October 3, 1904.

DANIEL E. STORMS,
Secretary of State.

Received the within report and delivered to the printer this 3d day of October, 1904.

THOS. J. CARTER,
Clerk Printing Bureau.

140591

INDIANA STATE BOARD OF AGRICULTURE.

INDIANAPOLIS, IND., August 25, 1904.

To His Excellency, WINFIELD T. DURBIN, *Governor of Indiana:*

I beg to submit herewith the report of the proceedings of the Indiana State Board of Agriculture for the year 1903.

CHARLES DOWNING,
Secretary.

MEMBERS

OF THE

Indiana State Board of Agriculture

1903.

1st District—JOHN C. HAINES, Rockport, Spencer County.
2nd District—MASON J. NIBLACK, Vincennes, Knox County.
3rd District—E. S. TUELL, Corydon, Harrison County.
4th District—JOHN TILSON, Franklin, Johnson County.
5th District—H. L. NOWLIN, Lawrenceburg, Dearborn County.
6th District—KNODE PORTER, Hagerstown, Wayne County.
7th District—DAVID WALLACE, Indianapolis, Marion County.
8th District—SID CONGER, Shelbyville, Shelby County.
9th District—W. T. BEAUCHAMP, Terre Haute, Vigo County.
10th District—OSCAR HADLEY, Danville, Hendricks County.
11th District—M. S. CLAYPOOL, Muncie, Delaware County.
12th District—WM. M. BLACKSTOCK, Lafayette, Tippecanoe County.
13th District—JOHN L. THOMPSON, Gas City, Grant County.
14th District—JOE CUNNINGHAM, Peru, Miami County.
15th District—C. B. BENJAMIN, LeRoy, Lake County.
16th District—JAS. E. McDONALD, Ligonier, Noble County.

OFFICERS FOR 1903.

JOHN L. THOMPSON, *President.*

MASON J. NIBLACK,
Vice-President.

E. H. PEED,
General Superintendent.

CHARLES DOWNING,
Secretary.

J. W. LAGRANGE,
Treasurer.

Executive Committee.

Messrs. NIBLACK, CONGER, WALLACE, McDONALD, CLAYPOOL.

A TABLE SHOWING THE OFFICERS, PLACE, AND PREMIUMS PAID OF EACH FAIR HELD BY THE STATE BOARD OF AGRICULTURE.

Year.	*President.*	*Secretary.*	*Treasurer.*	*General Superintendent.*	*Place of Fair.*	*Premiums Paid.*
1852	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	W. T. Dennis	Indianapolis	
1853	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	J. J. Bingham	Lafayette	
1854	Gov. Joseph A. Wright	Wm. T. Dennis	Royal Mayhew	W. T. Dennis	Madison	
1855	Gen. Joseph Orr	John B. Dillon	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	$2,753 00
1856	Dr. A. C. Stevenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,225 00
1857	Dr. A. C. Stevenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,127 00
1858	Dr. A. C. Stevenson	John B. Dillon	Thomas H. Sharp	Calvin Fletcher, Jr.	Indianapolis	
1859	George D. Wagner	John B. Dillon	Thomas H. Sharp	James L. Bradley	New Albany	6,163 00
1860	George D. Wagner	Wm. T. Dennis	Thomas H. Sharp	James L. Bradley	Indianapolis	3,827 00
1861	D. P. Holloway	Wm. T. Dennis	H. A. Fletcher		No Fair	
1862	James D. Williams	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	3,994 00
1863	A. D. Hamrick	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	
1864	Stearns Fisher	W. H. Loomis	Francis King	W. H. Loomis	Indianapolis	4,121 00
1865	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Fort Wayne	4,078 00
1866	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Indianapolis	
1867	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Terre Haute	6,331 00
1868	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,087 00
1869	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,517 00
1870	J. D. Williams	Joseph Poole	Carlos Dickson	J. S. Benson	Indianapolis	7,914 00
1871	J. D. Williams	Joseph Poole	Carlos Dickson	Jacob Mutz	Indianapolis	8,564 00
1872	John Sutherland	Alex. Herron	Carlos Dickson	H. W. Caldwell	Indianapolis	9,619 20
1873	John Sutherland	Alex. Herron	Carlos Dickson	H. W. Caldwell	Indianapolis	8,864 75
1874	John Sutherland	Alex. Herron	Carlos Dickson	E. J. Howland	Indianapolis	10,754 00
1875	William Crim	Alex. Herron	Carlos Dickson	E. J. Howland	Indianapolis	12,068 20
1876	Hezekiah Caldwell	Alex. Herron	Carlos Dickson	J. L. Hanna	Indianapolis	8,179 30
1877	Jacob Mutz	Alex. Herron	Carlos Dickson	J. W. Furnas	Indianapolis	6,337 95
1878	W. B. Seward	Alex. Herron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,057 0
1879	Robert Mitchell	Alex. Herron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,472 0
1880	W. H. Ragan	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	6,553 0
1881	R. M. Lockhart	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	6,855 50
1882	° H. C. Meredith L. B. Custer	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	8,096 00

1883	Robert Mitchell	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	$9,581 13
1884	Robert Mitchell	Alex. Herron	S. Johnson	Fielding Beeler	Indianapolis	10,414 30
1885	R. M. Lockhart	Alex. Herron	S. Johnson	Fielding Beeler	Indianapolis	9,000 50
1886	W. B. Seward	Alex. Herron	S. Johnson	H. B. Stout	Indianapolis	9,419 00
1887	W. B. Seward	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	9,726 50
1888	J. N. Davidson	Alex. Herron	S. Johnson	R. M. Lockhart	Indianapolis	9,917 50
1889	J. N. Davidson	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	10,200 00
1890	W. A. Banks	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	13,040 50
1891	W. A. Banks	Leon T. Bagley	S. Johnson	C. E. Merrifield	Indianapolis	15,297 00
1892	J. M. Boggs	Leon T. Bagley	S. Johnson	E. H. Peed	Indianapolis	19,876 00
1893	V. K. Officer	Chas. F. Kennedy	J. A. Wildman	E. H. Peed	Indianapolis	18,407 50
1894	J. M. Sankey	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	18,516 70
1895	J. M. Sankey	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	17,561 98
1896	W. W. Hamilton	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	14,817 17
1897	C. B. Harris	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	19,296 88
1898	Charles Downing	Chas. F. Kennedy	E. J. Robison	John L. Thompson	Indianapolis	11,113 32
1899	W. W. Stevens	Chas. F. Kennedy	J. W. Lagrange	H. B. Howland	Indianapolis	17,167 11
1900	Aaron Jones	Charles Downing	J. W. Lagrange	H. B. Howland	Indianapolis	16,125 75
1901	J. E. McDonald	Charles Downing	J. W. Lagrange	E. H. Peed	Indianapolis	18,935 50
1902	M. S. Claypool	Charles Downing	J. W. Lagrange	E. H. Peed	Indianapolis	18,196 25
1903	John L. Thompson	Charles Downing	J. W. Lagrange	E. H. Peed	Indianapolis	18,828 51
1904	John C. Haines	Charles Downing	J. W. Lagrange	E. H. Peed	Indianapolis	

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* Henry C. Meredith died July 5, 1882, and the Vice-President, L. B. Custer, served the unexpired term.

LIST OF MEMBERS OF INDIANA STATE BOARD OF AGRICULTURE, SHOWING DATE AND TERM OF SERVICE.

Name.	County.	First Elected.	No. Years Served.
Allen, Joseph	Montgomery	1853	2
Banks, W. A.	Laporte	1882	12
Barnes, John P.	Madison	1879	4
Barnett, Cott	Cass	1898	3
Basler, F.	Sullivan	1872	2
Bennett, Wm. H.	Union	1854	7
Bennett, Wm. H.	Union	1863	2
Berry, W. W	Knox	1889	3
Blackstock, Wm. M.	Tippecanoe	1895	2
Blanche, Willis	Howard	1887	2
Boggs, John M	Tippecanoe	1885	8
Bonner, W. H.		1859	2
Bradley, James L	Johnson	1856	3
Branham, D. C.	Jefferson	1861	2
Brown, Dr. R. T.	Montgomery	1855	4
Brown, Geo. W.	Shelby	1857	2
Burke, L. A.	Posey	1870	5
Buskirk, George A.	Monroe	1870	2
Beauchamp, Wm. T.	Vigo	1899	1
Bridges, John C.	Putnam	1901	2
Caldwell, Hezekiah	Wabash	1867	12
Carr, John F.	Jackson	1862	2
Claypool, A. B.	Fayette	1871	8
Claypool, M. S	Delaware	1893	7
Clemens, B. F.	Wabash	1889	2
Cockrum, Jas. W	Gibson	1853	2
Coffin, W. G.	Vermillion	1859	4
Cofield, J. W	Ohio	1877	4
Collins, T. H.	Floyd	1858	4
Cotteral, W. W	Henry	1883	2
Cox, E. T.	Posey	1864	6
Crawford, George	Laporte	1862	2
Crim, Wm	Madison	1869	9
Custer, L. B.	Cass	1878	10
Conger, Sid	Shelby	1900	1
Davis, John L.	Montgomery	1895	5
Davidson, Stephen	Fulton	1870	8
Davidson, Jasper N.	Montgomery	1883	12
Dennis, W. T.	Wayne	1854	5
Donaldson, W. C.	Parke	1863	8
Dowling, Thomas	Vigo	1871	4
Downing, Charles	Hancock	1893	8
Drake, James P.	Marion	1854	2
Dume, George G.	Lawrence	1851	2
Duncan, Wm.	Lawrence	1858	4
Dungan, S. W.	Johnson	1882	12
Durham, Thos.	Vigo	1852	2

LIST OF MEMBERS, ETC.—Continued.

NAME.	COUNTY.	FIRST ELECTED.	NO. YEARS SERVED.
Emison, Samuel	Knox	1851	2
Fisher, Stearns	Wabash	1854	13
Fletcher, Calvin	Marion	1862	2
Franklin, W. M.	Owen	1855	3
Freeman, A.	Porter	1858	4
Gaar, J. M	Wayne	1865	2
Gerard, J. B	Dearborn	1873	2
Gilbert, Joseph	Vigo	1881	2
Graffe, Dr. G. B.	Gibson	1855	5
Graham, John M	Delaware	1883	4
Greer, W. A	Dearborn	1885	3
Grosvenor, J. A.	Marion	1864	2
Haines, John C	Lake	1896	4
Hamrick, A. D.	Putnam	1859	14
Hamilton, W. W	Decatur	1891	6
Hancock, R. H.	Harrison	1878	6
Hargrove, Samuel	Pike	1882	6
Harris, Chas. B	Elkhart	1892	6
Harris, Jacob R.	Switzerland	1851	4
Hay, A. Y	Clark	1854	2
Haymonds, Dr. Rufus	Franklin	1855	4
Haynes, R. P	Daviess	1875	8
Helm, Dr. Y. C	Delaware	1859	10
Herriot, Samuel	Johnson	1853	2
Herron, Alex	Fayette	1867	4
Holton, W. B.	Marion	1894	2
Holloway, David P	Wayne	1851	4
Holloway, David P	Wayne	1861	2
Holmes, D. J. C.	Delaware	1859	10
Howland, H. B	Marion	1892	2
Howland, H. B	Marion	1896	3
Huffstetter, David	Orange	1853	2
Hussey, George	Vigo	1851	1
Hadley, Oscar	Hendricks	1902	....
Johnson, F. C.	Floyd	1872	6
Jones, Aaron	St. Joseph	1894	6
Jones, Dick	Bartholomew	1883	8
Jones, Lloyd	Huntington	1889	4
Kelley, John B	Warrick	1851	2
Kirkpatrick, T. M	Howard	1881	2
Lagrange, J. W.	Johnson	1894	4
Lane, George W	Dearborn	1852	8
LaTourette, Henry	Fountain	1883	4
Levering, John	Tippecanoe	1852	2

LIST OF MEMBERS, ETC.—Continued.

NAME.	COUNTY.	FIRST ELECTED.	NO. YEARS SERVED.
Levering, Mortimer	Tippecanoe	1897	4
Lockhart, R. M	Dekalb	1874	20
Loder, Isaac B	Rush	1861	4
Loomis, W. H	Allen	1861	4
Matson, J. A	Putnam	1854	1
Matthews, Claude	Vermillion	1897	2
Maze, W. A	Tipton	1891	4
Meredith, Henry C	Wayne	1879	4
Milhouse, J. V	Jennings	1875	2
Mitchell, Robert	Gibson	1875	21
Mitchell, Thos. V	Rush	1869	10
Morgan, Jesse	Rush	1852	2
Mutz, Jacob	Shelby	1868	14
McBride, Jeremiah	Martin	1851	3
McClung, J. A	Fulton	1888	4
McConnell, George N	Steuben	1860	2
McConnell, George N	Steuben	1864	6
McCoy, James S	Knox	1892	4
McCrea, John	Monroe	1864	6
McDonald, M. A	Warren	1893	2
McDonald, James E	Noble	1894	6
McMahan, John	Washington	1851	3
McWilliams, R. C	Parke	1881	2
Nelson, J. D. G	Allen	1853	6
Nelson, J. D. G	Allen	1870	4
Nelson, Thomas	Parke	1875	4
Nelson, Thomas	Parke	1889	2
Niblack, Mason J	Knox	1896	4
North, Benjamin	Ohio	1867	6
Nowlin, H. L	Dearborn	1897	4
Officer, V. K	Jefferson	1888	9
O'Neal, J. K	Tippecanoe	1881	2
Orr, Joseph	Laporte	1851	6
Peck, Henry	Cass	1862	2
Peed, E. H	Henry	1885	8
Piatt, Nathan	Warrick	1860	4
Porter, Knode	Wayne	1897	3
Poole, Joseph	Fountain	1861	12
Quick, S. R	Bartholomew	1879	4
Raab, D. G	Ohio	1856	5
Ragan, W. H	Putnam	1873	10
Ratliff, John	Grant	1883	4
Reese, D. E	Dearborn	1865	4
Reiter, Gerard	Knox	1888	1
Robison, E. A	Johnson	1898	3

LIST OF MEMBERS, ETC.—Continued.

Name.	County.	First Elected.	No. Years Served.
Robison, E. J.	Marion	1902	1
Sample, H. P	Tippecanoe	1873	8
Sankey, James M	Vigo	1891	6
Shoemaker, John C	Perry	1862	10
Seig, J. Q. A	Harrison	1884	10
Seward, A	Monroe	1851	2
Seward, W. B	Monroe	1872	20
Seybold, Dempsey	Parke	1879	2
Simonton, Robert	Huntington	1887	2
Smith, Abraham	Knox	1853	2
Spalding, T. N	Lagrange	1852	2
Stevenson, Alex. C	Putnam	1851	3
Stevenson, Alex. C	Putnam	1855	4
Stevens, W. W	Washington	1894	6
Stewart, Charles B	Tippecanoe	1883	2
Sunman, T. W. W	Ripley	1881	4
Sutherland, John	Laporte	1864	18
Swinney, Thomas W	Allen	1851	1
Thompson, John L	Grant	1895	5
Thompson, S. H	Jefferson	1864	3
Turner, John N	Grant	1879	2
Tuttle, T. W	Delaware	1876	1
Vawter, S	Jennings	1855	3
Vinton, A. E	Marion	1858	2
Wagner, G. D	Warren	1854	7
Wiley, Lemuel	Switzerland	1863	1
Willard, Roland	Kosciusko	1851	2
Williams, James D	Knox	1855	18
Wright, Joseph A	Marion	1851	3

State Industrial Associations.

OFFICERS FOR 1903.

Indiana State Board of Agriculture—President, John L. Thompson, Gas City; Secretary, Charles Downing, Indianapolis.

Indiana Horticultural Association—President, John Tilson, Franklin; Secretary, W. B. Flick, Lawrence.

Indiana Shorthorn Breeders' Association—President, E. W. Bowen, Delphi; Secretary, John G. Gartin, Burney.

Indiana Dairymen's Association—President, J. J. W. Billingsley, Indianapolis; Secretary, H. E. Van Norman, Lafayette.

Indiana Wool Growers' Association—President, W. H Thornburg, Alexandria; Secretary, J. W. Robe, Greencastle.

Indiana Swine Breeders' Association—President, J. B. Luyster, Franklin; Secretary, W. R. Midkiff, Shelbyville.

Indiana Poultry Breeders' Association—President, Frank Johnson, Howlands; Secretary, Jesse Tarkington, Indianapolis.

Indiana Farmers' Mutual Insurance Union—President, Aaron Jones, South Bend; Secretary, H. L. Nowlin, Lawrenceburg.

Indiana Jersey Cattle Club—President, M. A. McDonald, West Lebanon; Secretary, C. C. Topp, Indianapolis.

Indiana Corn Growers' Association—President, H. F. McMahan, Liberty; Secretary and Treasurer, Scott Meiks.

Farmers' Institutes—Director, Prof. W. C. Latta, Purdue University, Lafayette.

Experiment Station—Director, Prof. John Skinner, Purdue University, Lafayette.

State Chemist—Prof. Arthur Goss, Purdue University, Lafayette.

State Entomologist—Prof. James Troop, Purdue University, Lafayette.

State Hereford Cattle Breeders' Association—President, F. L. Studebaker, Bluffton; Secretary, C. E. Amsden, Waldron.

Indiana Angus Cattle Breeders' Association—President, Will R. Pleak, Greensburg; Secretary, Geo. W. Henderson, Lebanon.

Indiana Chester White Swine Breeders' Association—President, L. A. Hinshaw, Zionsville; Secretary, W. H. Morris, Indianapolis.

Indiana Duroc-Jersey Swine Breeders' Association—President, W. E. Jackson, Knightstown; Secretary, J. M. Phelps, New Castle.

Indiana Poland China Swine Breeders' Association—President, Adam F. May, Flat Rock; Secretary, W. H. Morris, Indianapolis.

ACTS OF THE LEGISLATURE GOVERNING THE INDIANA STATE BOARD OF AGRICULTURE.

AS TAKEN FROM HORNER'S ANNOTATED STATUTES 1901, VOL. I.

(2614) Incorporation. 4. The State Board, as at present constituted and organized, is hereby created a body corporate, with perpetual succession, in manner hereinafter described, under the name and style of the "Indiana State Board of Agriculture."

(2615) Officers. 5. It shall be the duty of the State Board to appoint a President, Secretary and Treasurer, and such other officers as they may deem necessary. The President shall have power to call meetings of the Board whenever he may deem it expedient.

(2616) Meetings. 6. There shall be held in the city of Indianapolis, on the first Tuesday after the first Monday in January, annually, a meeting of the Indiana State Board of Agriculture, together with the president of each county agricultural society or other delegate therefrom duly authorized, who shall for the time being be ex-officio members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects and conditions of the agricultural interests throughout the State. And at such annual meeting, the several reports from the county societies shall be delivered to the President of the Indiana State Board of Agriculture; and the said presidents and delegates shall, at this meeting elect suitable persons to fill all vacancies in said Board: Provided, however, that said election shall not affect the members of the Board present, whose term shall not be considered to expire until the last day of said session.

(2617) Annual Report. 7. It shall be the duty of said Board to make an annual report to the General Assembly of the State of the receipts and expenditures of the Board, together with such proceedings of the State Board and reports from county agricultural societies, as well as a general view of the condition of agriculture throughout the State, accompanied by such recommendations as they may deem interesting and useful.

(2618) State Fairs. 8. The Indiana State Board of Agriculture shall have power to hold State Fairs at such times and places as they may deem proper and expedient, and have the entire control of the same, fixing the amount of the various premiums offered, embracing every article of science and art, or such portions of them as they may deem expedient and proper, calculated to advance the interests of the people of the State. They may employ assistants, receive contributions, donations, etc., and unite with a county or district society for the purpose of defraying the expenses of said State Fairs.

(2619) Expenses. 9. The State Board of Agriculture shall certify to the Auditor of State the ordinary expenses of the Board proper, including the necessary personal expenses of their attendance on not more than two meetings in any one year. The Auditor shall audit the same, and, on his warrant, the Treasurer of State shall pay the same out of any money appropriated for agricultural purposes.

(2620) May Buy Land. 1. The Indiana State Board of Agriculture is empowered to purchase and hold real estate, for the purpose of holding State Fairs and other uses of the Board, to an amount not exceeding two hundred and forty (240) acres; and to sell any real estate it may hold, for the purpose of reinvesting the proceeds in other real estate for the same general objects.

(2621) Purchase Ratified. 2. The purchase of real estate made by said Board, A. D. 1860, of William A. Otis and others, consisting of thirty-six acres of the northwest quarter of section thirty-six, township sixteen, range three east, in Marion County, are hereby ratified and confirmed; and the said Board is empowered to hold the same for the general objects of the Board; Provided, that nothing herein contained shall authorize said Board to hold more than eighty acres, as aforesaid.

(2622) Exempt from Tax. 4. The real and personal estate of said Board shall be exempt from taxation; and the County Treasurer of Marion County is authorized and required to pay to said Board the amount of taxes assessed and collected upon said real estate for said county for the years 1862, 1863 and 1864; and the Treasurer of State shall refund to said Board of Agriculture the amount of State taxes collected upon said real estate for the years aforesaid.

(2623) Yearly Appropriation. 4. The sum of ten thousand dollars ($10,000) annually is appropriated for the use of the Indiana State Board of Agriculture, to be expended in the payment of premiums awarded by the said Board, to be paid out of the State Treasury upon the first day of April yearly, and to be receipted for by the President, attested by the Secretary of the said Board.

(2623a) Lands Exempt from Taxation. 1. That any part, parcel or tract of land not exceeding eighty acres and the improvements thereon, owned by county or district agricultural associations of this State, organized agreeably to the provisions of "An act for the encouragement of agriculture," approved February 17, 1852, shall be exempt from taxation: Provided, that when the same shall cease to be used or occupied exclusively for the purpose specifically set out in said act, approved February 17, 1852, or shall fail in any way to comply with the provisions thereof, the same shall cease to be exempt from taxation.

(2624) Room for Specimens. 2. The Governor is hereby directed to select a convenient room in the Capitol, or in any building that may be erected by the State, if a suitable one can be found, and, if not, hire one suitable for the deposit and safekeeping of such minerals, soils, ores, fossils, maps, sketches, etc., as may be collected and made by direction of said Board, which room shall be placed under the control of said Board.

(2625) May Borrow and Mortgage. 1. The State Board of Agriculture is hereby authorized and empowered to borrow the sum of sixty thousand dollars, at a rate of interest not exceeding six per cent. per annum, and for security of the payment of said sum, to mortgage its property in Marion County known as the State Fair grounds, and to apply the sum so borrowed to the payment of a like sum heretofore borrowed of one J. A. Hambleton, and to take up and destroy all notes, bonds and mortgages given therefor. And the said Board shall have power to issue bonds to the above named amount of sixty thousand dollars, and to make the said bonds payable ten years after date, but redeemable at the pleasure of said Board, on sixty days' notice after five years from date.

(2626) Deed of Trust Postponed. 2. To enable the said State Board of Agriculture to borrow said money, and to execute a satisfactory mortgage therefore, F. A. W. Davis, to whom said Board has heretofore executed a trust deed, to secure a repayment by said Board to the State of the sum of twenty-five thousand dollars, appropriated to the use of said Board by an act approved March 10, 1877, in section one, item five of said act, is hereby authorized and required to release, satisfy and cancel said deed, and reconvey to said Board the interest described therein. And in lieu of such deed, the said Board shall execute a new deed of trust to said Davis, or, if the Governor and Attorney General so advise, to the Auditor of State; which new deed of trust shall be a lien on said State Fair grounds next after the mortgage provided for in the preceding section.

(2627) Debt Prohibited. 4. Said Board is hereby prohibited from borrowing money, or creating or contracting any further liability or debt, on the faith or credit of said property or any other property, or in anywise further incumbering the same with any lien or charge, except as heretofore in this act provided.

(2628) Vacancies, How Filled. 1. Whenever a vacancy in the office of the Secretary, Treasurer or Superintendent of the State Board of Agriculture shall occur by death, resignation or otherwise, the same shall be filled by appointment by the Pesident of said State Board of Agriculture, which appointee shall hold said office until some regular meeting of the State Board of Agriculture.

THE

Indiana State Board of Agriculture

CONSTITUTION.

As Revised and Adopted at the January Meeting of the Board, 1891.

Article 1. The name and style of this society shall be "The Indiana State Board of Agriculture," its object, to promote and improve the condition of agriculture, horticulture, and the mechanic, manufacturing and household arts.

Art. 2. There shall be held in the city of Indianapolis, at such time as may be prescribed by law, an annual meeting of the State Board of Agriculture, together with presidents, or other delegates duly authorized, from each county, or such other agricultural society as may be authorized by law to send delegates, who shall, for the time being, be ex-officio members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects and condition of the agricultural interests throughout the State; and at such annual meetings the several reports from county societies shall be delivered to the President of the State Board of Agriculture; and the said President and delegates shall, at this meeting, elect suitable persons to fill all vacancies in this Board: Provided, however, That said election shall not affect the members of the Board present, whose terms shall not be considered to expire until the last day of the session.

Art. 3. The State Board-elect shall meet immediately after the adjournment of the State Board, for the purpose of organization and for the transaction of such other business as the wants and interests of the society may require; and hold such other meetings from time to time, for making out premium lists, preparing for State Fairs, and all other business necessary to the promotion of the objects of the society.

Art. 4. The State Board-elect shall consist of sixteen members, chosen from the following districts:

1st District—Posey, Vanderburgh, Gibson, Warrick and Spencer counties.
2d District—Knox, Daviess, Martin, Pike, Dubois, Crawford and Perry counties.

3d District—Harrison, Washington, Orange, Floyd, Clark and Scott counties.

4th District—Jackson, Lawrence, Brown, Monroe, Greene, Owen, Johnson and Sullivan counties.

5th District—Jefferson, Switzerland, Ohio, Dearborn, Franklin, Ripley, and Jennings counties.

6th District—Bartholomew, Decatur, Rush, Fayette, Union and Wayne counties.

7th District—Madison, Hancock, Hamilton, Henry and Shelby counties.

8th District—Marion County.

9th District—Clay, Vigo, Parke, Vermillion and Fountain counties.

10th District—Putnam, Morgan, Hendricks, Montgomery and Boone counties.

11th District—Delaware, Randolph, Jay, Adams, Wells, Huntington and Blackford counties.

12th District—Carroll, White, Benton, Newton, Tippecanoe, Warren, Jasper and Pulaski counties.

13th District—Clinton, Tipton, Howard, Grant, Wabash and Whitley counties.

14th District—Elkhart, Kosciusko, Fulton, Cass and Miami counties.

15th District—St. Joseph, Marshall, Starke, Laporte, Porter and Lake counties.

16th District—Allen, Dekalb, Steuben, Lagrange and Noble counties.

Chosen for two years, one-half of whose terms expire every year, to wit: Those representing the first, second, third, fourth, seventh, fourteenth, fifteenth and sixteenth districts expire at the annual meeting of 1860, and those representing the fifth, sixth, eighth, ninth, tenth, eleventh, twelfth and thirteenth districts expire at the annual meeting to be held in January, 1861. To be chosen by ballot.

Art. 5. It shall be the duty of the President to preside at all meetings, conduct the business in an orderly and parliamentary manner, and officially sign all vouchers and drafts upon the Treasurer (except for premiums), and all other instruments requiring the same, and call special meetings in cases of emergency.

Art. 6. The State Board-elect shall, at the annual meeting after the adjournment of the delegate meeting, proceed to elect one of their number President, who shall hold his office for a term of one year, and until his successor is elected and qualified; and one of their number for Vice-President, whose term shall be the same as President, who shall act, and for the time being have all the power, as President, whenever the President is absent from any regular meeting. They shall also elect some suitable person as Secretary and some suitable person as Treasurer, and a General Superintendent, who shall hold their offices each for one year, unless removed for incompetency or neglect of duty. They shall also elect four of their number who shall, with the President, constitute an Executive Committee, who shall have power to act in cases of emergency, where loss would result by waiting till a regular meeting of the Board, but shall have no power whatever during a meeting of the Board.

Art. 7. It shall be the duty of the Treasurer to safely keep the funds belonging to the society, pay out the same on orders or drafts drawn by the Secretary, and report annually to the State Board, and as much oftener as he may be called upon by the Board, and shall give bond for the faithful performance of his duties.

Art. 8. It shall be the duty of the General Superintendent to take care of and carefully keep all property belonging to the society, have the care and control of the Fair Grounds during the recess; have the supervision and oversight of such improvements or additions as may be directed by the State Board, and, under their direction, procure materials, contract for labor, and shall be, during the continuance of the Fair, the Chief Marshal and head of the police. The members of the Board shall employ all the necessary police and gatekeepers.

Art. 9. The Secretary shall keep a true record of the proceedings. He shall conduct all correspondence on behalf of the society, except when otherwise directed by the President. He shall, by himself and assistants by him appointed, arrange the details of the entries, tickets and enroll the names of committees and judges of the State Fair, receive and record the various reports of the awarding committees, fill out and deliver all diplomas and certificates. It shall be the duty of the Secretary to condense the County Agricultural reports for each year into one volume and superintend the publishing of the same. He shall audit and file all accounts against the Board; draw orders in favor of the proper persons on the Treasurer for the amount; but orders shall not be drawn payable to order or bearer, but to the name of the party alone or his agent. He shall make an annual report, showing amount of all orders upon the treasury, and shall perform such other duties as the best interests of the society may demand; but he is at all times subject to the direction and control of the State Board.

Art. 10. At the annual meeting of the Board the salaries of the Treasurer, Secretary and Superintendent shall be fixed for the ensuing year; Provided, That said Board may, in their discretion, at any meeting of said Board, make said officers an additional allowance for extra services.

Art. 11. That no compensation shall be allowed to delegates attending the annual meetings of the State Board; nor shall the members of the State Board-elect be paid any sum of money, as compensation or otherwise, except by order of the Board-elect.

Art. 12. The State Board may adjourn from time to time, or they may be called together by the Secretary, by order of the President, by a written notice to each member, enclosed by mail, and a notice of such meeting published in two or more newspapers of general circulation, in the city of Indianapolis; and all meetings so held by adjournment, or calls, shall be deemed regular and legal.

Art. 13. Any alteration or amendment to this Constitution may be made at the annual meeting of the State Board, two-thirds of all the members voting for such amendment.

Art. 14. The following standing committees shall be appointed by the President, to whom all matters of business coming up for reference under their particular heads shall be referred, unless otherwise specially directed by the Board:

1. Finance and Claims.
2. Rules and Regulations.
3. Fair Grounds.
4. Unfinished Business.
5. Geological Survey—Executive Committee, ex-officio.
6. Premium List.

AMENDMENTS TO THE CONSTITUTION.

At the May meeting in 1851, certain rules, embracing ten sections, for the government of county agricultural societies, were adopted by the Board of Agriculture, as required in Section 1 of the statute laws enacted by the Legislature of Indiana for the "Encouragement of Agriculture," approved February 17, 1852.

At the February meeting of 1868 the rules were found inexpedient and were repealed, and the following resolutions, submitted by the Committee on Rules and Regulations, were adopted:

Resolved, That all county and district societies shall be organized and governed by the laws of the State of Indiana in regard to agricultural societies, and especially under the act passed by the Legislature and approved February 17, 1852.

Resolved, That all societies so organized will be entitled to send delegates to this Board (State Board of Agriculture) at its annual meetings, and will be received and acknowledged upon the presentation of their reports and credentials, and compliance with the laws as legally organized societies.

Minutes of the Board.

EXECUTIVE COMMITTEE MEETING, AUGUST 20, 1903.

The Executive Committee of the Indiana State Board of Agriculture met at the office of the Secretary in Room 14, State House, in the city of Indianapolis, Indiana, on August 20, 1903, pursuant to the call of the President.

There were present Hon. John L. Thompson, President; David Wallace, Mason J. Niblack, M. S. Claypool, and J. E. McDonald. Mr. Sid Conger was absent.

Mr. W. W. Blackstock, Superintendent of the Heavy Horse Department, appeared before the committee and showed the condition of the show horse stables, and suggested the building of a new barn to be used for a show horse barn.

The matter was discussed at length by Mr. Blackstock and the members of the committee, and taken under consideration.

On motion of Mr. Wallace, seconded by Mr. Niblack, the application of the manager of the Morning Star to occupy the grass plat at the head of Central avenue in the fair gorunds was granted this year.

The Board then adjourned and visited the fair grounds to investigate the condition of the same and view the improvements going on.

JOHN L. THOMPSON,
President.

CHARLES DOWNING,
Secretary.

BOARD MEETING, SEPTEMBER 12, 1903.

The Indiana State Board of Agriculture met at the fair grounds of the Board, on September 12, 1903, for the purpose of conducting the Fiftieth Annual Indiana State Fair.

There were present all the officers and members of the Board.

The President gave an informal talk on the fair and the importance of the Superintendents attending to the proper conduct of the fair.

After a general discussion of the fair and its prospects the Board adjourned.

JOHN L. THOMPSON,
President.
CHARLES DOWNING,
Secretary.

Monday morning, September 14, 1903, the Board met. All members and officers present. The fair was declared formally opened.

The Board adjourned on motion.

JOHN L. THOMPSON,
President.
CHARLES DOWNING,
Secretary.

Tuesday morning, September 15, 1903, the Board met. All members and officers were present. The day's program was carried out.

JOHN L. THOMPSON,
President.
CHARLES DOWNING,
Secretary.

Wednesday morning, September 16, 1903, the Board met. All members and officers were present. The program of the day was carried out.

JOHN L. THOMPSON,
President.
CHARLES DOWNING,
Secretary.

Thursday morning, September 17, 1903, the Indiana State Board of Agriculture met. All officers and members present.

There being nothing of importance to come before the Board, the Board adjourned, and the members assumed charge of their respective departments.

JOHN L. THOMPSON,
President.
CHARLES DOWNING,
Secretary.

Friday morning, September 18, 1903, the Board met. All officers and members were present.

On motion, the Secretary was authorized to issue premium statements to all persons who were awarded prizes during the fair, which the Treasurer was authorized to pay.

The program of the day was completed, and the Board directed that the fair close.

JOHN L. THOMPSON,
President.
CHARLES DOWNING,
Secretary.

Saturday morning, September 19, 1903, the Board met pursuant to adjournment.

There were present all officers and members.

On motion of Mr. Beauchamp, seconded by Mr. Tuell, all unsettled matters connected with the fair were referred to the Executive Committee.

On motion of Mr. Claypool, seconded by Mr. Porter, all bills made on contracts were authorized to be settled by the President and Secretary.

On motion of Mr. Claypool, seconded by Mr. McDonald, the Secretary was authorized to pay all premiums by warrants on the Treasurer, and that all bills of expenses of the fair be paid after being audited by the President and Secretary.

On motion of Mr. Claypool, seconded by Mr. McDonald, Mr. M. Z. Rudy was allowed the sum of $150, for expenses on "Dan R," pacer, who was engaged as a special attraction.

On motion of Mr. Haines, seconded by Mr. Blackstock, the Board adjourned.

JOHN L. THOMPSON,
President.

CHARLES DOWNING,
Secretary.

EXECUTIVE COMMITTEE MEETING, NOVEMBER 20, 1903.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to the call of the President.

There were present, Hon. John L. Thompson, President, and Messrs. Claypool, McDonald, Wallace, Conger and Niblack.

On motion of Mr. Niblack, seconded by Mr. McDonald, the President and Secretary were authorized to arrange the program for the annual meeting of the Board.

On motion of Mr. Claypool, seconded by Mr. McDonald, the matter of employing a representative of the Passenger Traffic Association was referred to the President and Secretary, with power to act.

On motion of Mr. Wallace, duly seconded, the Secretary was instructed and authorized to employ a stenographer to take down the proceedings of the different industrial association meetings during the annual meeting.

On motion of Mr. McDonald, seconded by Mr. Wallace, the rent for the barns on the fair grounds from October 1st to April 1st was fixed at $20 per month.

On motion of Mr. Wallace, seconded by Mr. McDonald, the President was authorized to have flues built in the horse barns on the fair grounds.

On motion of Mr. McDonald, duly seconded, it was ordered that the Executive Committee meet at the Auditorium Hotel in Chicago on December 1, 1903, at 10 o'clock a. m.

On motion of Mr. Niblack, seconded by Mr. McDonald, the

President and Secretary were authorized to attend the meeting of fair managers at Sandusky, Ohio, on December 15, 1903.

On motion of Mr. McDonald, seconded by Mr. Wallace, Mr. A. W. Wishard, of Indianapolis, was retained to look after the claim of the Board for damages against the United States Government, and that $100 be appropriated to him to meet expenses.

On motion of Mr. Wallace, seconded by Mr. Niblack, the claim of Mrs. Smith was referred to the Secretary, and that Mr. Winchester be notified to pay Mrs. Smith for the butter left by her on the fair grounds in the dairy building.

On motion, the claims presented by the Secretary, warrants Nos. 4 to —, were allowed and ordered paid.

JOHN L. THOMPSON,
President.

CHARLES DOWNING,
Secretary.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to order of the committee at the Auditorium Hotel in Chicago, Ill., December 1, 1903.

There were present, Messrs, Thompson, Wallace, McDonald, Niblack and the Secretary.

The Board appeared before the Board of Review of the American Trotting Association in the appeal case of E. E. Powell and others against the Board, and defended the case.

On motion, the Secretary was instructed to defend the case brought against the Board by ————Richardson in Squire Smock's court in Indianapolis.

The committee attended the International Live Stock Show and the annual meeting of the American Association of Fairs and Expositions in Chicago.

Adjourned.

JOHN L. THOMPSON,
President.

CHARLES DOWNING,
Secretary.

CONGRESS

OF

Indiana Industrial Associations.

INDIANA DELEGATE STATE BOARD OF AGRICULTURE.

John L. Thompson, Gas City, President.
Mason J. Niblack, Vincennes, Vice-President.
Charles Downing, Indianapolis, Secretary.
J. W. LaGrange, Franklin, Treasurer.
E. H. Peed, New Castle, General Superintendent.

TUESDAY AND WEDNESDAY, JANUARY 5 AND 6, 1904,
10 O'CLOCK A. M.

Room 12, State House.

EXECUTIVE COMMITTEE.

Messrs. Claypool, Niblack, Wallace, McDonald and Conger.

MEMBERS OF THE BOARD.

1st	District—John C. Haines	Rockport, Ind.
2d	District—Mason J. Niblack	Vincennes, Ind.
3d	District—E. S. Tuell	Corydon, Ind.
4th	District—John Tilson	Franklin, Ind.
5th	District—H. L. Nowlin	Lawrenceburg, Ind.
6th	District—Knode Porter	Hagerstown, Ind.
7th	District—David Wallace	Indianapolis, Ind.
8th	District—Sid Conger	Shelbyville, Ind.
9th	District—W. T. Beauchamp	Terre Haute, Ind.
10th	District—Oscar Hadley	Danville, Ind.
11th	District—M. S. Claypool	Muncie, Ind.
12th	District—Wm. M. Blackstock	Lafayette, Ind.
13th	District—John L. Thompson	Gas City, Ind.
14th	District—Joe Cunningham	Peru, Ind.
15th	District—C. B. Benjamin	Leroy, Ind.
16th	District—James E. McDonald	Ligonier, Ind.

INDIANA STATE BOARD OF AGRICULTURE.

John L. Thompson, Gas City, President.
Charles Downing, Indianapolis, Secretary.

TUESDAY, JANUARY 5, 1904, 10 O'CLOCK A. M.

Room 12, State House.

Welcome Address......Hon. John W. Holtzman, Mayor of Indianapolis.
Registering of Delegates.
Address..................................President John L. Thompson.
Address..Governor W. T. Durbin.
Appointment of Committees.
Reports of Secretary and Treasurer.
Reports of General and Department Superintendents.
Address....Hon. W. W. Stevens, of World's Fair Commission of Indiana.
Address...................Prof. H. E. Van Norman, Purdue University.

WEDNESDAY, JANUARY 6, 1904, 9:30 O'CLOCK A. M.

Reports of Committees.
Nomination of Candidates for Membership on the Board.
Election of Members.
Unfinished Business.
Miscellaneous Business
Adjournment.

INDIANA STATE ASSOCIATION OF FAIR MANAGERS.

J. J. Insley, President, Crawfordsville, Ind.
W. M. Blackstock, Secretary, Lafayette, Ind.

TUESDAY, JANUARY 5, 1904, 1:30 O'CLOCK P. M.

Room 11, State House.

Annual Address.............J. J. Insley, President, Crawfordsville, Ind.
The Fair—Its Objects and Benefits to Both Town and Country..........
J. Q. Thomas, Rushville, Ind.

Discussion.

Should County Fairs Offer Sweepstakes or Grand Champion Prizes, and What Changes Can Be Made in the Show Rings to Make Our Fairs More Successful?..................Wm. Johnson, Ft. Wayne, Ind.

Discussion.

In What Departments of the Fair Can the Management Be Improved?... H. L. Nowlin, Lawrenceburg, Ind.

Discussion.

The Future Outlook for County Fairs..W. M. Blackstock, Lafayette, Ind.

Discussion.

Miscellaneous Business.

Election of Officers.

INDIANA CORN GROWERS' ASSOCIATION.

H. F. McMahan, President.
T. A. Coleman, Vice-President.
Scott Meiks, Secretary.

TUESDAY, JANUARY 5, 1904.

Room 67, State House.

MORNING SESSION, 9:15 A. M.

Call to Order by President.

Address..Gov. W. T. Durbin.

Corn Breeding..........................A. T. Wiancko, Lafayette, Ind.

Questions and Discussions.

Use of Score Card and Improvement of Indiana Corn.

Questions, Opinions.

What Indiana Should Do at the St. Louis World's Fair......L. B. Clore.

Miscellaneous Business.

Corn Feeders' Session.

AFTERNOON SESSION, 1 P. M.

Election of Officers.

Object Lesson in Scoring Corn.

Corn Silage and Its Benefit to Feeders......T. S. Nugen, Lewisville, Ind.

Questions.

Handling Beef Cattle for the Best Market............................. A. O. Lockridge, Greencastle, Ind.

Questions.

Cattle Feeding Experiments............................J. H. Skinner.

Questions.

If you have Corn you are proud of or wish to sell for seed, bring five ears and have it scored.

INDIANA STATE HEREFORD CATTLE BREEDERS' ASSOCIATION.

F. L. Studebaker, President.
S. L. Wright, Vice-President.
C. E. Amsden, Secretary and Treasurer.

WEDNESDAY, JANUARY 6, 1904, 2 O'CLOCK P. M.

Room 12, State House.

Remarks by President.
Annual Address.....................................Frank Van Natta.
Beef Cattle..M. N. Parr.
Showing and Fitting..............................F. A. Nave.
Discussion led by..................................David Wallace.
Report of Secretary and Treasurer.
Election of Officers.

INDIANA SHORT HORN CATTLE BREEDERS' ASSOCIATION.

E. W. Bowen, President, Delphi.
W. F. Christian, Vice-President, Indianapolis.
John G. Gartin, Secretary, Burney.
J. E. Silverthorn, Treasurer, Rossville.

JANUARY 6 AND 7, 1904.

Room 11, State House.

WEDNESDAY AFTERNOON, 2:00 O'CLOCK.

Meeting called to order.
Report of Thirty-first Annual Meeting.
President's Address..................................E. W. Bowen.
Why I Breed Short Horns.............................Dr. W. J. Quick.
Short Horn Future........................Mrs. Virginia C. Meredith.
Discussion.....................................Captain John Welsh.
Adjournment.

EVENING SESSION, 7:30 O'CLOCK.

Payment of Dues.
What Should We Do for the St. Louis Exposition?......S. F. Lockridge.
Discussion..W. S. Robbins.

My Experience with Ensilage....Prof. William Hill, Chicago University.
Our State Class and Its Benefits.........................F. W. Cotton.
Discussion....................................Colonel Dave Wallace.
Adjournment.

THURSDAY MORNING, JANUARY 7, 9:30 O'CLOCK.

Meeting called to order.
How to Feed a Show Steer from Birth to Three Years Old..............
Prof. Skinner, of Purdue University.
Discussion..Luther Moorman.
Selection and Care of a Herd Bull.........................H. H. Keim.
Discussion........................James M. Donnelly and W. G. Riley.
Election of Officers.
Adjournment.

INDIANA ANGUS CATTLE BREEDERS' ASSOCIATION.

Will R. Pleak, President, Greensburg, Ind.
Geo. W. Henderson, Secretary, Lebanon, Ind.

JANUARY 6, 1904, AT 2:00 O'CLOCK P. M.

AFTERNOON SESSION.

2:00. Meeting called to order and President's Address.
2:30. Roll call. Minutes of Previous Meeting.
3:00. Reports of Officers and Committees.
3:30. Election of Officers.
4:00. Unfinished and New Business, and social hour.
Adjournment.

EVENING SESSION.

7:30. Angus Talk and What I Saw on My Visit to Scotland............
W. H. Goodwine, West Lebanon, Ind.
8:15. Things That Most Interest Breeders of Angus Cattle..............
O. E. Bradfute, Cedarville, Ohio.

INDIANA SWINE BREEDERS' ASSOCIATION.

J. B. Luyster, President, Franklin, Ind.
A. S. Gilmore, Vice-President, Greensburg, Ind.
W. R. Midkiff, Secretary, Shelbyville, Ind.
Allen Beeler, Treasurer, Liberty, Ind.

EXECUTIVE COMMITTEE.

L. L. Mooreman, F. F. Moore, L. L. Henshaw.

THURSDAY, JANUARY 7, 1904, 9 O'CLOCK A. M.

Address by President.
Minutes of Last Meeting.
Effects of Feed on Size and Quality of Bone.............................
E. J. Barker, Thorntown, Ind.
Discussed by........................W. S. Johnston, New Augusta, Ind.
Some of the Difficulties which Swine Breeders Have to Encounter, and How to Overcome Them..............W. O. Canaday, Frankton, Ind.
Discussed by...............................W. O. Smiley, Judson, Ind.
What Constitutes the Real Value of Breeding Animals, and Why Do Breeders Pay Seemingly High Prices for Some Animals and Refuse to Buy Others That Are Seemingly Better at Low Prices?...........
Col. C. A. Travis, Lafayette, Ind.
Discussed by..........................Col. Allie Powell, Wabash, Ind.
Some Leaks in Raising and Disposing of Pedigreed Hogs................
Joe Cunningham, Peru, Ind.
Discussed by.................................Linc Lukens, Disco, Ind.
The Swine Breeder and His Pedigrees..W. H. Morris, Indianapolis, Ind.
General Discussion.
Has the Price of Breeding Hogs Decreased in the Past Twelve Months; If so, What is the Cause of Same?......Lloyd Mugg, Kokomo, Ind.
Discussed by.............................Joe Cunningham, Peru, Ind.
Best Way to Make Money Out of Hogs..Chas. Lockhart, Martinsville, Ind.
Discussed by..............................Allen Beeler, Liberty, Ind.
When Animals Are Sold Guaranteed to Breed, What Responsibility Attaches to the Seller and What to the Buyer?.......................
Col. David B. Wallace, Indianapolis, Ind.
Discussed by.......................Walter J. Quick, Winchester, Ind.
Which is Most Profitable, the Large, Medium or Small Hog? Is the Demand for Large Hogs Greater Now Than in Past Years?............
F. F. Moore, Rochester, Ind.
Discussed by..............................C. C. Cotton, Manilla, Ind.

Is a Breeder Justified in Selling His Seconds or Culls to the Farmer Trade?............................F. P. Modlin, New Castle, Ind.
Discussed by............................Marie Riley, Thorntown, Ind.
How Shall We, as Swine Breeders, Proceed to Secure Competent Judges for the World's Fair of 1904?
General Discussion.

SPECIAL NOTICE.

Banquet at Dennison Hotel, Thursday, January 7, at 7:30 p. m.

BANQUET COMMITTEE.

John Harcourt, M. W. Neal, J. B. Luyster, David B. Wallace, W. S. Johnson, Chas. B. Lockhart, E. K. Morris, A. F. May.

Swine Breeders' Headquarters, Oneida Hotel, South Illinois Street.

FARMERS' MUTUAL INSURANCE COMPANIES' UNION OF INDIANA.

Aaron Jones, President, South Bend, Ind.
H. L. Nowlin, Secretary, Lawrenceburg, Ind.

THURSDAY AND FRIDAY, JANUARY 7 AND 8, 1904.

Room 12, State House.

THURSDAY, 10:00 A. M

Call to Order.
Address of Welcome..........................Governor W. T. Durbin.
Response..................................L. E. Collier, Kokomo.
President's Annual Address.................Aaron Jones, South Bend.
Appointment of Committees.
The Best Method of Occupying the Entire Field for Mutual Insurance....
Dr. Joseph Saunders, Anderson.

1:30 P. M.

Enrollment of Members.
How Can the Farmers Best be Educated in the Matter of Insurance....
W. R. Clore, Franklin.
What Mutual Insurance is Doing for the Farmers of Indiana............
L. W. Dunfee, Columbia City.
Cyclone Insurance...................Hon. George V. Kell, Huntertown.
How Shall We Get the Companies to Join Our Union...................
A. L. Heim, Boonville.
Address..............................Judge E. M. Coffin, Lincoln, Neb.

FRIDAY, 9:30 A. M.

Report of Companies by Delegates.
Making and Collecting Assessments................I. M. Miller, Upland.
Should Mutual Insurance Companies be Restricted as to Territory......
D. F. Clark, Mulberry.
What Mutual Insurance Companies Owe Their Employes, and Vice Versa
L. J. Hook, Stockport.
Report of Secretary and Treasurer.
Report of Auditing Committee.
Election of Officers.

1:30 P. M.

Appointment of Standing Committees.
The Value of Printers' Ink in the Mutual Insurance Work..............
H. F. Hitchcock, Lincoln, Neb.
Miscellaneous Business and Adjournment.

OTHER ASSOCIATIONS MEETING AT INDIANAPOLIS DURING THE WEEK OF JANUARY 5, 1904.

INDIANA WOOL GROWERS' ASSOCIATION.

W. H. Thornburg, President, Alexandria, Ind.
J. W. Robe, Secretary, Greencastle, Ind.

Tuesday, January 5, 1904, at 1:30 p. m., at the State House.

CENTRAL POLAND CHINA RECORD ASSOCIATION.

Adam F. May, President, Flat Rock, Ind.
W. H. Morris, Secretary, Indianapolis, Ind.

Wednesday, January 6, 1904, at 2 p. m., at the State House.

INDIANA CHESTER WHITE SWINE BREEDERS' ASSOCIATION.

L. A. Hinshaw, President, Zionsville, Ind.
W. H. Morris, Secretary, Indianapolis, Ind.

Thursday, January 7, 1904, at 4 p. m., at the State House.

INDIANA DUROC-JERSEY SWINE BREEDERS' ASSOCIATION.

W. E. Jackson, President, Knightstown, Ind.
J. M. Phelps, Secretary and Treasurer, New Castle, Ind.

Thursday, January 7, 1904, at 5 p. m., and Friday, January 8, 1904, at 9 a. m., at the State House.

INDIANA POLAND CHINA SWINE BREEDERS' ASSOCIATION.

Adam F. May, President, Flat Rock, Ind.
W. H. Morris, Secretary, Indianapolis, Ind.

Wednesday, January 6, 1904, at 7:30 p. m.

INDIANA JERSEY CATTLE CLUB.

M. A. McDonald, President, West Lebanon, Ind.
C. C. Topp, Secretary, Indianapolis, Ind.

Wednesday, January 6, 1904.

PROCEEDINGS

OF THE

FIFTY-SECOND ANNUAL CONVENTION

OF

Indiana Delegate State Board of Agriculture,

Tuesday and Wednesday, January 5-6, 1904.

The first session was called to order at 10 a. m., January 5, 1904, by the President, John L. Thompson.

A roll-call of members of the Indiana State Board of Agriculture, by Secretary Charles Downing, showed the following members present:

First District—John C. Haines, Rockport, Spencer County.
Second District—Mason J. Niblack, Vincennes, Knox County.
Third District—E. S. Tuell, Corydon, Harrison County.
Fourth District—John Tilson, Franklin, Johnson County.
Fifth District—H. L. Nowlin, Lawrenceburg, Dearborn County.
Sixth District—Knode Porter, Hagerstown, Wayne County.
Seventh District—David Wallace, Indianapolis.
Eighth District—Sid Conger, Shelbyville, Shelby County.
Ninth District—W. T. Beauchamp, Terre Haute, Vigo County.
Tenth District—Oscar Hadley, Danville, Hendricks County.
Eleventh District—Marc S. Claypool, Muncie, Delaware County.
Twelfth District—Wm. M. Blackstock, Lafayette, Tippecanoe County.
Thirteenth District—John L. Thompson, Gas City, Grant County.

Fourteenth District—Joe Cunningham, Peru, Miami County.

Fifteenth District—C. B. Benjamin, Leroy, Lake County.

Sixteenth District—James E. McDonald, Ligonier, Noble County.

Hon. John W. Holtzman, Mayor of Indianapolis, in welcoming the State Board members to the city, said:

Mr. President and Gentlemen:

I hardly know how to address so varied an audience except to say "Gentlemen," and if Sid Conger will excuse me I will use that term. I had hardly expected to be able to be with you this morning, although I want to assure you that it is a pleasure to meet with you; but since going into office on the fifteenth day of last October I have been rather busy, and have had very little time to prepare speeches for any occasion. On that score, I have no doubt, you will all feel like congratulating yourselves, because you will escape what would probably be a long, tedious and dry address.

I do want to say that on behalf of the city of Indianapolis we appreciate the work done by the various associations which meet here in these conventions. Indiana is a great State, with most wonderful and varied resources. And while Indianapolis is becoming a large manufacturing center, that, after all, is but a small part of the business of the city. If the great growth and development of the city of Indianapolis is to continue she must in the future, as she has in the past, depend upon the agricultural districts for the support which will make that growth possible. I will not say that I feel like congratulating the gentlemen who are here, the farmers of the State of Indiana, for the progress they have made in the last decade or two. Dave Wallace told me to say I had been a farmer and I would be all right. I was raised on a farm. In the days when I did farming it was done in rather a crude way. We planted corn simply because it was corn, and there was no pedigree about it. It was the same about the raising of hogs. There was some effort made in the raising of cattle to improve the stock, and there was still more of an effort made towards improving the breeds of horses, but there was nothing like the care that is exercised in these matters now. There is a greater degree of intelligence exercised now in the tilling of the soil than there was in the days when I was a boy on the farm. People are becoming educated to the fact that there is something more than the mere putting of the seed in the ground; they have learned that there is a great deal in the selection of that seed. Since the days when I was a boy on the farm, a great many other things have occurred in this country, and some of them very recently. One of these things is the rural mail routes, which makes it possible for the farmers to get the daily papers every evening to read at their own firesides. We used to have to be satisfied with a weekly paper, which we got when we went to town on Saturday.

By getting together here and exchanging views you will still further improve the conditions of yourselves and your neighbors. And not only that, but by the exhibitions you give at our State and county fairs you are interesting the public in your work.

Allow me to say again that in behalf of the city of Indianapolis we welcome you. We are glad to have you with us, and we want you to enjoy while you are here all the good things we have in the city. I think we have the most beautiful, the most progressive, and I might say the most moral inland city in the world. We are pleased to have you come to us in conventions like this, bringing the highest and the best from the various parts of the State of Indiana.

In conclusion I will say that, as far as lies in my power, anything I can do to make your stay pleasant will be gladly done, even to giving you the keys of the city. And if anything should happen to you while you are here, if you will call me up I will see that our metropolitan police force will furnish you a conveyance to take you to your various places of abode. The fact of the matter is that I have already had one call. Mr. Conger has sent word that he wants a patrol wagon to help him to get to his home at 7 o'clock this evening. He said he had fallen into bad company and had been kept up until 3 o'clock this morning, and he would need our help to get home.

I am very glad to have met you, and would be glad to have you come to my office while you are in the city. There I shall be glad to shake you by the hand.

The following reports were read by Secretary Downing:

SECRETARY'S REPORT.

Indianapolis, January 5, 1904.

To the President and Members of the Indiana State Board of Agriculture:

Gentlemen—I herewith submit a report of the receipts and disbursements of the Indiana State Board of Agriculture for the year ending January 5, 1904, as follows:

Receipts.

Balance in Treasurer's hands January 5, 1903......		$2,213 25
Appropriations from the State....................	$10,000 00	
Rent from track, stable and grounds..............	2,433 18	
Stall and pen rent...............................	2,009 00	
Privileges	5,277 60	
Admissions	33,617 25	

Entry fees	2,139 00	
Exhibitors' tickets	810 00	
Special premiums	1,239 50	
Loans	1,277 60	
		58,803 13
Total receipts		$61,016 38
Paid to Treasurer as per receipts		58,803 13

Disbursements, Warrants Drawn.

Members' per diem	$4,236 92	
Salaries of officers	3,248 95	
Construction, labor and repairs	6,055 37	
Insurance	1,239 91	
Loans repaid	4,800 00	
Postage, telegraph and telephones	726 73	
Freight and express	435 04	
Rrinting, stationery and office supplies	1,145 10	
Advertising	5,213 27	
Police	472 05	
Assistant Superintendents and Judges	3,159 69	
Fair supplies	2,446 67	
Premiums	18,828 51	
Special attractions	3,765 00	
Special tickets redeemed	123 00	
Music	560 00	
Miscellaneous	1,774 57	
Balance	2,785 60	
Total		$61,016 38

The following is a complete list of all warrants issued during the year ending January 5, 1904, which are unpaid and outstanding at this date:

No. 570.	Clerk of the Marion Circuit Court	$11 40
" 578.	Lilly & Stalnaker	8 65
" 883.	Farmer's Advance	2 00
" 1166.	D. B. Winchester	30 00
" 1167.	Charles Downing	75 00
" 1168.	John Hohn	12 00
" 1169.	Indianapolis Mortar Fuel Co	1 20
" 1170.	Balke & Krauss	11 62
" 1171.	The A. Burdsal Co	2 52
" 1172.	Lilly & Stalnaker	3 52
" 1173.	Smith Premier Type Writer Co	7 15

No. 1174.	Wm. B. Burford	$26 95	
" 1175.	Richardson-Kothe Co	459 12	
" 1176.	Hummel & Cones	3 00	
" 1177.	D. B. Winchester	37 00	
" 1179.	J. E. McDonald	22 00	
" 1180.	Richardson	22 00	
" 1182.	Mason J. Niblack	36 90	
" 1183.	David Wallace	25 00	
" 1184.	John L. Thompson	62 50	
" 1185.	Charles Downing	66 25	
" 1186.	Central Union Telephone Co	26 20	
" 1187.	New Telephone Co	42 95	
	Total		$904 03

STATEMENT OF THE FAIR OF 1903.

Receipts.

Admissions	$33,617 25	
Privileges	5,277 60	
Entry fees	2,139 00	
Exhibitors' tickets sold	810 00	
Stall and pen rents	2,009 00	
Special prizes	1,239 50	
Total		$45.092 35

Disbursements.

Premiums—	
Speed horses	$2,800 00
Show	2,775 00
Cattle	5,572 54
Sheep	1,560 02
Swine	1,375 00
Poultry	1,359 00
Fruits	538 50
Flowers	421 50
Bees and honey	10 00
Dairy products	158 00
Agriculture	811 25
Art	1,308 20
Table luxuries	139 50
Special attractions	3,765 00
Members' per diem for the year	4,236 92
Officers' salaries for the year	3,248 95

Postage, telegraph and telephone for the year	726 73	
Freight and express for the year	435 04	
Printing, stationery and officers' supplies for the year	1,145 10	
Advertising	5,213 27	
Assistant Superintendents and Judges	3,159 69	
Police	472 05	
Supplies for the fair	2,446 67	
Special tickets redeemed	123 00	
Music for the fair	560 00	
Profits of the fair	731 42	
Total		$45,092 35

Respectfully submitted,
CHARLES DOWNING, Secretary.

TREASURER'S REPORT.

To the President and Members of the Board:

Gentlemen—I herewith submit my report for the year ending January 5, 1904, as follows:

Receipts.

Balance from 1902	$2,213 25	
Received from Secretary	25,185 88	
Admissions	33,617 25	
Total receipts		$61,016 38

Disbursements.

Warrants of 1902 paid in 1903	$424 62	
Warrants of 1903	57,235 85	
Outstanding	994 22	
Balance on hand	2,360 98	
		$3,355 91
		$61,016 38

Respectfully submitted,
J. W. LAGRANGE, Treasurer.

On motion, the reports of the Secretary and Treasurer were referred to the Auditing Committee.

The President appointed the following committees:

Auditing Committee: Knode Porter, M. S. Claypool and Joe Cunningham.

Committee on Credentials: M. A. McDonald, Oscar Hadley and W. T. Beauchamp.

Vice-President, Mason J. Niblack, presided while the President read his annual address, as follows:

PRESIDENT'S ADDRESS.

Gentlemen of the State Board of Agriculture:

Your Board has had a year of plenty, and it is facing a future that is aglow with promise. You have an enterprise in your keeping that has grown marvously in these later years and it is one which gives evidence of much greater growth if you give it the same thought and care which you have in the past bestowed upon it. Your last fair was your largest and best one because of the energy you placed behind it, and because of the ripe experience which you brought to its support. As a result, you gave one of the few fairs which has enabled you to clean your books of all obligations, have a neat balance with which to begin you efforts this year and, in addition, you have paid off an old obligation of $4,800.

You accomplished much more than these things with your last fair. You quickened public interest in your exhibition more than you ever did before. You have reached into the far corners of the State with the doctrine that your fair is an uplifting force, whose benefits spread in all directions and to all classes of our population. It has been demonstrated that agriculture and its kindred industries form the dominating force which in recent years has been the greatest earner of material wealth in Indiana. Through your own effort, through the kindness of the public press, and through the word of the tiller of the soil and the herder of the flocks, it has gone abroad that your State Fair was the training school, the source of inspiration, which has led the farmer and live-stock man to strive for greater things; and as he has accomplished his ends, he has dispersed his gain until all the State has shared in it.

I urge you to greater efforts to spread the word of what your Board is, what its purposes are, what it has done and what it hopes to do. Cast this bread upon the waters and in time it will come back to you many fold. For fifty years your predecessors, as you are doing, fought their financial battles alone and distributed their victories for the benefit of people of high and low degree throughout our commonwealth, each year lifting Indiana into higher rank and into greater wealth as an agricultural and live stock State. Spread this word, I say, until in time it will ring in the ears of those who should give it greatest heed—the General Assembly of Indiana. I say it in sincerity and in kindest spirit that the General Assembly will awaken to the worth of your cause, when it will become imbued with a spirit of generosity and place your enterprise where it will be safe from financial storms and where it will take rank with the State fairs of Illinois, Ohio and the larger ones of other States. I believe the Legislature will awaken to the fact that yours is a work for the greatest good to the greatest number; that it is not an enterprise for private greed or gain; that you have a school for the grower of grain and the breeder of live stock—a clearing house where buyer and seller may meet on common ground. Through this school of instruction you are improving the farmer, and he in turn is spreading his gains with beneficent hand among the people about him. In due time these blessings turn into commercial channels which supply our cities and towns with their very lifeblood. I believe the time will come in the counties of Indiana, as it has already come in the counties of Illinois, when a seeker after a seat in our Legislature will have to pledge his material support to the Indiana State Fair before the people will elect him.

Year by year it becomes more apparent that your Board should look to the interests and entertainment of fair visitors who are not directly interested in agriculture and its allied branches. The farmer from year to year finds his eyes and thoughts centered upon the live stock and products of the soil which exhibitors have to offer. They lose none of their freshness for him. But it is the element of people who are not so closely identified with these things which you should encourage in every possible way to come to the fair. The Board should be ever on the alert for fresh attractions of high quality, of good moral tone—the kind that are not regarded as a waste of time by visitors who would give them attention. I doubt if in all the years that Indiana has had a State Fair it has offered a feature which aroused such general enthusiasm as the parades of horses and cattle at the exhibition of last September. These parades held the attention of the raiser and buyer of live stock, they won warm favor from the transient visitor, and in many ways was demonstrated their worth as a leading attraction. I urge that these parades be continued from year to year and that methods for broadening them in as many directions as possible be found. I recommend that the parades and the general attractions of the fair be placed under the directions of a chief marshal, who shall be a member of the Board. It has been demonstrated that the General Superintendent is too much involved in other important duties to give attention to the parades and similar shows about the grounds.

The gravest question which will confront you during the year will be that of whether, in view of the Louisiana Purchase Exposition, an attempt should be made to hold a State Fair in Indianapolis next September. I urge you to dispose of this question with greatest caution. I seriously doubt the wisdom of undertaking a fair this year. The greater one at St. Louis will draw upon the resources and patronage of all State fairs to a very great extent. The farmer and the city man will be a patron of the World's Fair because of the larger opportunities for observation. It will attract the better grade of exhibits because of greater opportunities to win higher laurels than a State Fair has to offer. The only argument which occurs to me in favor of holding a State Fair would be that of holding our list of regular exhibitors. In view of their loyal support from year to year, I doubt if they would desert the Indiana Fair should it be abandoned for one year.

In 1893 the Indiana Fair had an overwhelming competitor in the Chicago World's Fair, and that year the Indiana Fair lost $11,000. I am afraid that the Indiana Fair would this year have still more disastrous results. You will find the business men of Indianapolis opposed to the idea of abandoning our fair this year. In the light of support from this element in other years, and in view of our own interests, I doubt the wisdom of taking Indianapolis into the reckoning. I urge you to give consideration to the plea from Indianapolis only after the people of that city give substantial evidence that they are willing to join forces with our Board in making the fair a success in a very doubtful year. This evidence should be something more material than the bare promise of support. This Board has for fifty years sought to obtain the help of Indianapolis people to make the fair a success. The Board has exhausted its ingenuity in providing entertainment for Indianapolis people, and those attractions which before the fair would be most promising, would when the fair came on, and response was expected from Indianapolis people, fail entirely. If Indianapolis feels that a State Fair is so important to its interests this year, that city should make known its wants and to what degree the want exists. I have little faith in conferences between our Board and committees representing commercial bodies of the city. They have been fruitless of results in other years so far as attendance or genuine support from the city was concerned. I am convinced that the efforts of the Board in the future should be directed toward providing for its most loyal supporters—the people of the interurban and smaller railroad towns of the State and those of the country districts.

I urge the Board to give serious consideration to the question of enlarging the powers of its Secretary and changing his title to that of General Manager. The position is no longer a clerical one. It requires a man of experience and business ability to properly attend to the many duties. He must necessarily keep pace with our growing enterprise. The President of your Board now has to bear the burden of many affairs which would more lightly fall upon a General Manager. The General

Manager would, as is the Secretary, be in the office of the Board from one fair to another, and as each fair came on he would keep in touch with the slightest details. The President of the Board can not be in Indianapolis throughout the year, and the General Manager should have power to dispose of questions of lesser importance, which now only the President can dispose of. Under present arrangements many of the little details are not worked out until the day the fair begins, and maybe later, while, if you will confer the authority on a General Manager he can dispose of them weeks before the fair comes on. I am confident that by broadening the powers of the Secretary and giving him a title which befits his higher station, you will broaden his usefulness and clear your President of many bothersome trifles which hinder him beyond measure while the fair is in progress.

One of your growing sources of revenue is the mile race track, where through spring and summer horses are in training for their work on the circuits. As time goes by it becomes clearer that this track is one of the Board's best investments and every effort should be put forward to make it a still greater producer of revenue. At the same time it should be protected and made as serviceable as possible. Its value can be largely increased to horsemen by resoiling its surface, and I recommend that the Board do this needed work as soon as the season will permit. The half-mile track has fully demonstrated its value, and it will have still greater worth if the Board will place it in such condition that it can be used as a wet weather track. I recommend that in the future a provision of race entries require that horses shall start in events on the half mile track, when the weather puts the mile course out of condition.

The litigation growing out of the right of the Board to purchase the 134 acres of land owned by Mrs. Theresa N. Smith held under lease and option to purchase by the Board, is still pending in the courts and undetermined. The decisions of the courts upon the pleadings in the case up to this time have been favorable to the Board, and we have the assurance of our counsel that we are in a fair way to be successful in the end.

I am heartily thankful to every member of this body for aid during the past year. It is upon you that I have leaned for support, and whatever success this administration has had is due to your sustaining force rather than to what I have done. To the heads of departments I have turned many times and found them eager to give their help. My thanks are due the General Superintendent for his constant energy. I have found our Secretary alert and tireless in his efforts, always turning his ability into the channel which would bring the most good to the Board. Your Treasurer has served you well and I have found him to be faithful and diligent in purpose. To the Board and its enterprise I give my best wishes for a deserved prosperity, which will come from work well done.

On motion, the address of the President was referred to the Committee on President's Address, viz.: David Wallace, Warder W. Stevens and H. L. Nowlin.

Hon. W. W. Stevens, a member of the World's Fair Commission of Indiana, made the following address:

Mr. President and Gentlemen—

I esteem it quite an honor to appear before you today to say a word in regard to Indiana at the coming World's Fair. I have been requested to confine my remarks to the agricultural feature of our State exhibit, but I shall also say samething about our Indiana building, which is now about completed. This is something you are all interested in. Indiana will have the most complete club house that will be found upon the Louisiana Purchase Exposition grounds. It will not be the most expensive, but for the purpose of a club house it will be the most convenient on the grounds. I want to add this much in a general way also, that the Indiana World's Fair Commission members are the servants of the people of Indiana, and they will spare no time, pains or means in order to accommodate all the good people of the State.

I find there is one thing more particularly than any other that the people of Indiana want to be looked after, and that is in the way of accommodations at St. Louis. This commission is going to arrange so that every one who attends this World's Fair will have no room for complaint when they go away about being swindled and overcharged. Make your wants known to the commission, and you will be taken care of.

INDIANA AT THE WORLD'S FAIR.

Those who have not kept in touch with the work that has been done to develop the Louisiana Purchase Exposition can scarcely realize the fact or endorse the statement that the greatest fair the world has ever seen is near at hand, both as to time and place.

It was generally conceded by visitors at the World's Columbian Exposition that its equal would hardly be seen again by the present generation, but we live in an age of rapid advancement and miraculous achievements, so that it is impossible for the mind of man to even conceive what a day may bring forth.

From April 30 to December 1, 1904, there will be on exhibition at St. Louis a congregation of the latest and greatest products that men and nations of all this world have developed along every line of industrial life, liberal and fine arts, science and invention.

Our own Government will spend more money, by several millions, and install a much larger exhibit than it has ever done at any previous

World's Fair. The several States will vie with each other as they have never done before in the display of their varied industries, making prominent those features which are likely to add most to their prosperity and development.

Greater inducements are held out to individual exhibitors in the matter of accommodations and awards than have ever been offered by any previous World's Fair management, and the result has been the awakening of a wide general interest, and the most extensive and thorough preparation all along the line where exhibits are to be made.

In this display many are no doubt anxious to know what Indiana is going to do. We all believe and know our State is one of the greatest in the nation. Its development has been miraculous when we take into consideration the fact that one hundred years ago nearly all our lands were owned by savages, there being then but two or three thousand whites in all our present domain. But our soil and our climate proved to be of the most genial nature, and development was rapid. For the first sixty years of our existence as a territory and State, agriculture was our chief industry and it leads all others combined today. We have had thirty years of remarkable development in our manufacturing industries, but their gross output—the products of more than 23,000 plants, large and small—fall many millions of dollars below the total of grain and stock products that are sent out from our farms. Very few realize that the annual contribution of wealth to the State from this one source amounts to over $250,000,000. And Indiana will always be one of the great cereal-producing States of the Union, and whatever we do to foster and build up this industry will contribute most to our material advancement.

I have been asked to come before this Agricultural Board and briefly speak of the efforts that are being put forth to bring out a creditable display of Indiana's farm products at the St. Louis Exposition. Our last Legislature voted an appropriation of $150,000, and provided for the appointment of a commission to exploit Indiana's varied industries at the Louisiana Purchase Exposition. The first appropriation made for exhibits by the commission was the sum of $20,000 for the purpose of collecting and installing the agricultural, horticultural and dairy products of the State and to aid in bringing out a creditable exhibit of live stock. The committee to whom this work was intrusted has been industriously at work for the past nine months, and has met with a great deal of encouragement from the enterprising citizens of the State, who realize the importance and necessity of doing this work well. The result has been that in the horticultural department several hundred bushels of as fine fruits as can be found anywhere in the whole country have been safely housed in cold storage, ready for display at the opening of the fair. This has been accomplished notwithstanding the fact that the past year was not a favorable one for fruit culture.

The dairymen of the State are all in line preparing specimens of butter and cheese for exhibition under the instruction of experts, and we are thus assured that this exhibit will be one that all who are interested in the work will be proud of. The special feature of this exhibit will be some modeling in butter. This will be an object lesson showing side by side the products obtained from a scrub and thoroughbred dairy cow. It will consist of two butter calves, fashioned by one of the best artists that can be found in the country, one being made up of the butter product from a scrub cow for one year, the other the butter made from an extra fine dairy animal for the same period. We expect this to be one of the great attractive features of the dairy exhibit at the World's Fair.

Every county in the State has been solicited to take part in the general agricultural display, by the appointment of an active agent in each county to solicit and get together exhibits. Most of these agents are doing faithful, energetic work, and in several counties special appropriations have been asked for and granted by the county commissioners. In some instances a considerable fund has been raised by private donation, and in others necessary material has been secured by working up corn shows. Just how large this general agricultural exhibit will be we are not able to state, but one thing we are assured of, that it will be the most extensive that has ever gone out of the State.

A special corn show will be the main feature of Indiana's grain exhibit. About $7,500 have been set aside to complete this show. The very best experts in the line of installing such an exhibit, to be found in the State, are now at work preparing attractive features for this display. The services of the best corn artists to be found in the whole country have also been secured to execute farm scenes and statues from different colored corn, the like of which has never been seen at any previous World's Fair.

Our live stock interests are being looked after by men who are very much interested in keeping up the reputation of the State as well as looking after individual interests. Superintendents of the various breeds of stock have been selected to get out the very best animals, flocks and herds to be found in the State, and see to it that all exhibition stock are put in the finest possible show condition. Indiana is naturally the great live stock center of the whole country, and is producing as much fine breeding stock as any other State. The breeders seem to be fully awake to the importance of making a grand display at St. Louis, and if they do not give us a show that we will all be proud of and come in for the lion's share of the laurels as well as the prizes to be awarded, we fail to read the signs of the times aright. The commission proposes to assist stock breeders by paying freights upon all meritorious animals placed on exhibition. An industry that is worth over $50,000,000 annually to the State deserves the most liberal encouragement that can possibly be extended to it.

This is, in brief, the plan upon which the Indiana World's Fair Commission is laboring to bring out a creditable display of agricultural products. The hearty, earnest, enthusiastic co-operation of all who are laboring along these lines must be secured to bring about the most desirable results and rewards, as well as credit, to our commonwealth. We are all proud, and have a right to be, of our past achievements, but we must look well to the future if we are to retain our prestige among the proud, progressive and incomparable galaxy of States, the present wonder of the world along the line of progress and achievement.

Now, I am glad to be able to appear before this body of representative agriculturists and tell you at first hand what our aims and ambitions are, and to invoke your interest and hearty co-operation. I desire to appeal to you for some sort of substantial aid and encouragement; such as may be in your power to contribute. The World's Fair Commission has done all it can in the matter with the means at its command. If a State agricultural society stands for anything it is for the promotion of agriculture and its allied industries—the uplifting of by far the largest class of our people representing our greatest industry. And any society that is backed up, as this one is, by liberal State aid can and should be a power for good along lines of work for which it was created. May I suggest that you seriously consider this proposition at an early day and decide to do something to encourage our display at St. Louis—something that would help to bring out the very best of everything, and anything that would help to demonstrate to the world Indiana's greatness as an agricultural State. It would have been strictly proper and appropriate for this Board to have been the prime and leading factor in carrying this work to a successful conclusion. You should have commanded and demanded this recognition. However, there are many things you can do that would redound to your honor and the credit of the State.

I might suggest the offering of special premiums, the development of extra interest along special lines of work in your several localities, a bureau of promotion, and many other things that might suggest themselves to a State Agricultural Board. This could be done independently or in co-operation with the commission, as you might determine. If you decide that it is not advisable to hold a State Fair the coming season, which in all probability will be the wise thing to do, your whole efforts could be directed to this work. And as you have an annual appropriation from the State to be used for the advancement of general agriculture, why could you not use a portion of same for premiums and awards to Indiana exhibitors at St. Louis who help to maintain our reputation and build up our farming industries. A tree is known by its fruits, and man, either individually or collectively, gains reputation and achieves honor by his good works. We venture the assertion that there isn't an enterprising taxpayer in the State who finds fault with the law appropriating funds to make our exhibit at St. Louis a creditable one—something we will all be proud of. And whatever this Board may do to further the cause, of which it is the acknowledged head, will be heartily concurred in by those who contribute to its support.

Governor Durbin was introduced and addressed the meeting, as follows:

Mr. President and Gentlemen:

This has been a morning of meetings and talks by the Governor. I shall not say that he is altogether talked out, but now approaches a subject which he has done largely by proxy. You may not expect to get any information from what I have to say, but I should like to say that only this day I have asked of the department in Washington to have installed in our State a station to test our soils, to tell us what they are composed of, and what is the most needful thing to do to get the best results. If I can not tell you how to do it, I may be the means of getting a hand that will be of some assistance to you.

You are gathered here for a specific purpose, namely, the advancement of certain farm interests, and while as a boy I did more or less first-hand farming, at 25 cents per day, in later years have done considerable tilling of the soil by proxy, and at all times have looked upon the lot of the successful agriculturalist as a species of unusual good fortune, it is doubtful if I could say anything that would enable you gentlemen to better promote the already high standard of stockraising in Hoosierdom. Hence, I shall speak briefly, giving my time to those who are prepared to contribute to the furtherance of the particular purpose for which you are assembled.

First of all, let me say, if the Mayor of this good city has not fully satisfied you on that point, that you are heartily welcome here. When the custodian of the State House told me yesterday that the meetings of the several branches of this organization scheduled for the State House threatened to overflow this vast building from cellar to dome, I told him that we farmers must have all the elbow room we needed here even if public business had to halt for a day or two.

Let me say, further, that it is a careless observer of conditions in this State, who does not recognize, as the chief source of the greatness of this commonwealth, the fact that rural life is still a vital, if not indeed a dominating, factor in our civilization. I am thankful that Indiana is not a State of great cities, that practically all of the people of this commonwealth live where there is light and sunshine enough to go 'round, and elbow room for every one. The country is more prolific than the city in the production of those sturdy virtues which make for good citizenship, for loyalty to law and order and devotion to our institutions. Only the current of healthful Americanism which the farms of this country have poured into our centers of population, has prevented decay and deterioration in these crowded quarters.

We may congratulate ourselves, however, upon the fact that in recent years, especially, the farm has come to be something more than a recruiting station for the city. American farm life in the Middle West, more particularly, has during the past decade, come to take on an attractive character peculiar to itself. The improvement of means of communication and intercourse, manifesting itself in the multiplication and betterment of highways and the abolition of toll gates, the extension of the trolley line and the telephone to the rural districts, and last, though not least, the bestowal of daily mail facilities upon thousands of farm households through the wise generosity of the government, all these things have served to place rural life in intimate touch with the activities of the world outside. Along with all these things, and the prosperity with which the American farmer has been blessed during the past few years, has come an appreciation on the part of farmers generally that they are as much entitled to the comforts and conveniences and luxuries of life as their city neighbors—and they are getting them. Indiana farm life as it is today and as it was forty years ago are as different as two things well could be. The farm is no longer a synonym for monotony, drudgery and isolation. It is an active factor in the industrial world, and farming is as much a business today as any branch of manufacture or trade. Organizations such as these represented here today have borne a large part in lifting agriculture to the high plane it occupies today, and the interest which attends this gathering constitutes a promise of future progress.

At gatherings of farmers for many years there has been liberal discussion of the question: "How to Keep the Boys and Girls on the Farm?" As a general proposition this problem has been answered by a revolution which has made farm life attractive. The discussions planned for this meeting will reveal the fact that the farm affords sufficient outlet for the activities of trained intelligence. A census of our Indiana institutions of higher learning will show that two-thirds, perhaps three-fourths of their students, are recruits from the farms or from rural communities. In ever increasing proportion these young men and women are finding that careers are possible outside of the towns and cities, and in increasing proportion, as the years go by, the Indiana farm will be gainer thereby.

Your meetings here represent the tendency toward specialization, which extends to all lines of industrial activity. Superior excellence in any one field of endeavor may be attained only by special training and experience. I have no doubt that these conferences as they have been going on here for several years, have contributed immeasurably toward the elevation of the standards of stock raising in Indiana. This year an international exposition at our very doors offers an opportunity not before afforded for more than a decade to make the world admit what we already admit ourselves, namely, that we raise a little better cattle, hogs and sheep in Indiana than grow elsewhere on the earth's surface. We were notably successful in this particular at Chicago in 1893, and by concerted effort, originating in these meetings, we may achieve still greater distinction at St. Louis in 1904.

Again I congratulate you, gentlemen of the convention, on the auspicious circumstances around which you gather, and again I assure you that the service you are rendering one of the great interests of this commonwealth is appreciated by the people of Indiana. In closing permit me to express the hope that your sessions may be attended by both pleasure and profit and that you may go away from here better prepared thereby to advance the standards of Indiana agriculture.

On motion, the meeting adjourned until 1:30 p. m.

AFTERNOON SESSION.

The State Board of Agriculture was called to order at 1:30 o'clock in order to hear some addresses omitted at the morning session.

Professor H. E. Van Norman, of Purdue University, made the following address:

At one time it was only necessary to scatter seed on the land in the most careless way in order to secure a fair crop.

Nature was not only generous, but prodigal with her gifts. We have imposed on this generosity, until now many farms will produce only fifty to seventy-five per cent. of the crop which could formerly have been reasonably expected.

This is not surprising when we remember to what extent wheat has followed wheat and corn after corn, and when we realize that $100 worth of roughness at the usual market prices takes from the soil as much plant food as is commonly secured when we buy from $65 to $95 worth of commercial fertilizer. That it takes from $30 to $60 worth of fertilizer to replace the plant food in $100 worth of grain crops.

Not only has the soil become less productive as a result of our methods of farming, but we must contend with severer droughts, insect pests and plant diseases. Our live stock is pestered with flies, and suffers with diseases which our ancestors knew nothing of. Hog cholera. anthrax, foot and mouth disease, tuberculosis and many others may be cited. Our orchards suffer from the attacks of curculio, San Jose scale, blight, etc., to such an extent that the modern orchardist must do something more than plant his trees and pick his crop.

The increasing importance of these various conditions is requiring that the modern farmer be a student of his business to a degree that many do not realize. Where formerly all that was necessary was strength and endurance to pile rock, remove timber and stumps and plow, plant and reap, and courage to persevere under more or less isolated conditions, it is now necessary to add to his equipment a degree of mental effort akin to that of the successful merchant or professional man.

Permit me to direct the attention of this organization, which stands for leadership in agricultural development in our State, to some of the influences and institutions which are at work for a larger and better agriculture, and also to the fact that the men who most need the helpful influence of these institutions are slow to leave their duties and attend the farmers' institutes, State Fair, live stock, dairy association, horticulture, and other meetings and often are not even reading a real live agriculture paper, to say nothing of books or bulletins. And yet the proportion who do take advantage of these helps is not only small, but upon them develops the public-spirited citizen's duty of arousing his neighbors to a realization of the opportunities which are at hand.

Conspicuous among these institutions may be mentioned the department of agriculture at Washington, the State experiment stations, the agriculture colleges and the farmers' institutes.

The department of agriculture has its investigators traveling in all parts of the world seeking that which may be helpful and profitably grown on our farms, and as a result of which we have new and profitable varieties of wheat and forage crops, such as soy beans, cow peas, grasses and grains. Recently they have succeeded in stamping out that terrible foot and mouth disease in New England. They have been instrumental in a very large degree in introducing the beet sugar industry, and, in co-operation with the State experiment stations, have very clearly pointed out the area most suitable to beet growing and are at work on the development of varieties adapted to them.

In certain parts of the country they are now at work on irrigation and forestry problems, also important soil surveys. Not least important is the work being done along the lines of improved roads. Each year the work of the department is being extended and co-operative work is being taken up in the different States.

Through the office of experiment stations the results of research by both Government and station authorities are published and made available to the farmers of the whole country. No farmer is living up to his largest possibilities who does not receive regularly and without cost "The Monthly List of Government Publications" telling him what has been published and where he can secure it. He should also have his name on the department mailing list for the series known as "Farmers' Bulletins" and another series of "Experiment Station Work."

Pardon a seeming digression while I review the origin and organization of our agriculture college and experiment station; that we may better understand their relation to our work. Early in the sixties that far-sighted congressman, Justin Morrill, of Vermont, realizing the need of a better understanding of underlying principles in agriculture and mechanic arts, succeeded in securing the passage of the Morrill land grant act, which gave to every State that would establish an agriculture college, certain lands, the sale of which provided a fund which should become a permanent endowment fund.

An old bachelor, John Purdue, who had made much money on the Wabash canal, proposed to the Indiana Legislature that it accept this Government land grant and establish the Indiana Agriculture College on lands in West Lafayette, which he with others would donate. This offer was accepted, and out of respect for John Purdue and his work the name was changed from Indiana Agriculture College to Purdue University.

As a result of the Morrill land grant act, there has been established in nearly every State in the Union an agriculture college or agriculture department in a college already in existence. Indiana, Michigan, Iowa and others have a land grant college. In Illinois, Ohio, Wisconsin and others the agriculture school is a department of the State university.

In our own State the manufacturing interests have been quicker to recognize the value of college training, with the result that the engineering work has outgrown the agricultural and given our institution a world-wide reputation for its achievements in engineering. The last few years have seen an awakening in agriculture. We have a new agricultural building and an increasing number of students, though the number is not nearly in proportion to the importance of the agricultural interests of the State.

After the establishment of the agriculture college, it became apparent that while we were trying to teach the science of agriculture we only knew thoroughly and accurately a very small proportion of what we ought to know; that it was important that some systematic work be done looking to the discovery of new truths and methods of making the old ones useful in everyday farm practice.

In 1887, or thereabouts, Congress passed the Hatch act, giving each State $15,000 annually for experiment and research. As the best trained men for this work were naturally to be found in the agriculture colleges, our experiment stations have been organized in connection with the school of agriculture in the respective States, except in a few cases, notably in Ohio, where the station is entirely separate and the investigators are not interrupted by the necessity of meeting classes.

Some of the first results of the experiment station work was that with commercial fertilizer, which has resulted in the saving of millions of dollars formerly spent for worthless materials. The introduction of the Babcock test making it possible to determine accurately and quickly the butter making value of milk, and the losses by imperfect skimming and churning. Milk and cream are now bought by test by every first-class creamery in the United States. Much has been done in the study of feeding problems such as the determination of relative values and profitable combination of feeding stuffs.

The feeding of sheep, cattle and hogs has had much attention. Michigan and Wisconsin have done conspicuous work with sheep. Iowa, Kansas and other Western States with steers. Indiana and Wisconsin with hogs. Vermont, New York and Wisconsin with dairy cattle.

In the early history of station work, owing to lack of funds and experience, experiments were conducted with too few individuals. Now the importance of feeding steers in car-load lots and sheep and hogs in pens of at last five or ten is fully appreciated, even if available funds do not permit it.

A branch of the station work which is yet in its infancy is the co-operative work, where some farmer or group of them furnishes the land, the labor and seed, or the cattle and feed, and the experiment station plans the experiment and visits from time to time during the season to give direction or assistance.

In our own State co-operative work has been begun with corn breeding and variety tests in a limited way. Iowa has led in the co-operative cattle feeding work, having some ten car loads of steers fed under the station's direction on one farm. The station selecting and grouping them, while the owner furnished feed and labor.

There is room in Indiana for a large amount of helpful work along this line and at not very great expense in proportion to results secured, adapting results to many localities, rather than confining them to that of the station farm. The Indiana station has given to the world the formalin treatment for oatsmut and the corrosive sublimate treatment for potato scab, as well as done some good work on fertilizer tests and wheat varieties, as well as along other lines.

It is possible to very much improve and enlarge the sphere of usefulness of our experiment station if the farmers care to co-operate in lines which will redound to their own benefit.

I call your attention to the fact that while the State is contributing to the work of educating the young men who go to Purdue University for agricultural training, Indiana does not appropriate one cent for experimental work and research. Agricultural college funds can not be used for station work, and yet the work of the station may come closer to a larger number of farmers, than that of the college. The money appropriated by the United States Government is all that is spent for experimental purposes.

I can not stop without saying something in behalf of the younger group of farmers who are steadily taking the place of those older men who have been and are the leaders of our agricultural interests, but are handing the lines over to younger men. If these young men are to attain as large a proportion of success as you have done they must do it by different methods, though not necessarily less effort. Times have changed, as I have tried to emphasize this afternoon.

To you who appreciate the value of training not merely for the facts it gives, but for the strength secured and the ability developed to meet new and unexpected emergencies and grappel with new and perplexing problems, and a larger power to get enjoyment out of that which it is necessary for us to do, I suggest the opportunity is yours to direct the young men of your respective communities to the value and importance of such training, little matter it whether it is secured at farmers' institutes, visits to the fairs, where the best of stock and crops are available for comparison, or a course, long or short, at the agricultural college. Many a young man is satisfied with less than he might have because he does not know it is within his reach if he only knew it and would go after it.

The methods of teaching in our colleges have undergone great development, as has agriculture. Today courses are vastly more helpful than when the agricultural college and its professors were both new to their work. Now the student handles and selects corn, goes over scores of animals as critically as does the fair judge; he makes butter and manipulates the soil and compounds spraying mixtures that he may correctly understand the relation of principles of "the why" to the practice. Agriculture, unlike mathematics, is not an exact science; land, plus seed, plus cultivation, plus harvest, don't necessarily make a crop. But a knowledge of fundamental principles, plus experience, plus good common sense, is sure to make a larger success than without either or all. The college offers the first only, the degree to which it may be useful depends almost entirely on the individual. No amount of it will entirely make up, however, for the absence of one or both of the others. Time does not permit further discussion of this immense subject. I chose it because I believe that a larger use of the helps for better agriculture will result from increased knowledge of what they are and how close at hand they lie.

Professor J. H. Skinner, of Purdue University, addressed the meeting as follows:

I don't know that what I shall say this afternoon will be of very great interest to the men here assembled; but it seems to me, after looking over the State House today, that our State really needs an organization that will unify all of the interests represented here. The State House is congested this week, people are wanting places to meet, men are going here and there, not knowing where they will find this association or that association. I have an idea that we should have something in the nature of a State live stock association. There are only a few men here interested in the various State organizations of live stock breeders this afternoon, but there are men connected with other organizations. I have prepared a statement, which I think is one that can go before any association that meets here this week. I am not trying to organize this from the standpoint of the university but as one who is connected with the agricultural, and particularly the live stock interests, of the State. I should like to see something brought before you that will mean greater things for the live stock interests of the State.

The associations we now have are of great benefit. They have done very much for the breeds in the State, and when we come to consider the live stock interests of Indiana we don't have to take a back seat for anybody. If we had an organization in this State which would unite all of these interests under one set of officers, under one head, and have it known as the State Live Stock Association, we could have a program made out for the annual meeting which would recognize the interests of these various associations, and yet not do away with the various characteristics of the various associations. I think this would be a good thing for our State. A great many of you are interested in the St. Louis Exposition and the live stock show there. The fact that large premiums are going to be offered there, and that the various States are doing a great deal to bring out live stock at that show, is significant. It seems to me that if we had all those various associations united, they would have more influence when they wish to go before the Legislature or anywhere else. By uniting they can do much more for the live stock interests of the State than they can as separate organizations. I do not advocate doing away with any of the associations we now have; they should have their officers and their meetings just as they do now, but a day should be set aside for a meeting where they could all get together. You ought all to get the benefit of all the talks. If we had a general association where we could bring all the various interests together we would all have the benefit of them. We could also bring experienced men before us, men who could bring us the information and the helps they have found useful in their work at home.

I have prepared a statement pointing out some of the benefits that would come to the breeders of the State through such an association. I have with that statement prepared a letter which I shall hand to the various breeders' associations before their meetings are closed this week. I shall ask them to consider it, and if they favor my plan I feel it would be a good thing if we had a number of members for a committee which might organize this association. In that way we might bring out a State live stock association similar to the associations in Ohio, Illinois and other States around us. Such an association in Illinois was instrumental in getting a large appropriation for the benefit of the live stock interests last year. You will also find such associations in Iowa and Nebraska. Our State, it seems to me, has been a little backward in this respect. I wish to say again that I do not advocate giving up the separate associations. I like the man who stands up for a particular breed in which he is interested, but at the same time I think we could all derive a great deal of benefit from coming together and discussing topics relating to the different breeds. If we could have the various cattle breeders' associations come together and have discussions on the subject of breeding and feeding, that would be of like interest to the Angus and the Jersey breeders. By making out a program that would be of interest to all these men, and then allowing certain sessions where each could go to his own meeting, we would have a much stronger standing. It seems to me this would be a good thing to do. If any of the members present are connected with the other associations where this statement may be brought before you, I wish you would say a word for it or against it, as you see fit. I am not trying to put something before the people they do not wish. I want them to consider this, and if they wish such an association they can form one, elect a president, secretary and treasurer, make out a program for an annual meeting, and arrange the meetings so that they will be of interest and profit to all of us.

Secretary Downing: This, I think is the best suggestion that has been made here for many a day. I believe the different breeders' associations ought to take the matter up and effect an organization. It will be better for the breeders, better for the associations and better for the State. As Professor Skinner suggests, it will make an organization that will be felt. I believe the different associations ought to take this matter up and effect such an organization, letting all of the different associations take part in it and have representation; then when we have these general meetings, instead of having a handful of people as we have today interested in this meeting, and another bunch in another room, let this be a general meeting, and let these questions of general interest be discussed by men of prominence. When Professor Skinner mentioned this plan to me a few weeks ago I thought it was a good thing, and it ought to be taken up. I hope you will not allow it to lag.

Colonel Wallace: I believe with Professor Skinner, and I shall pledge him my support. I think it is the most practical thing I have heard of in connection with these meetings of breeders of live stock. As a fair manager I think it is a practical suggestion. I am speaking now from a State Board standpoint. I believe with an organization of that kind, which would include the sheep and swine men as well as the breeders of the different kinds of cattle, we can go before our Legislature as an organization and say to them, "We have a great State here; we are practically out of debt, and we need help in our State Fair matters. We have got to keep pace with Illinois and Iowa and Ohio. There is no politics in it. We want your assistance, and we want it in the nature of a couple of hundred thousand dollars at least to fix up our fair grounds out here." If we have an association of the kind spoken of by Professor Skinner we can go before them and say that, but if we go before them as different organizations we will not have much weight. I thank you for the suggestion, Professor, and assure you that I am heartily in favor of it.

Professor Skinner: If there are any questions to be asked I shall be very happy to answer them. I appreciate what Mr. Wallace has said, but I should like to hear further discussion.

Mr. Blackstock: Following what has been said about the accommodations for live stock at the fair grounds, any gentleman present who has visited the Illinois State Fair grounds and has seen the magnificent buildings they have erected there for exhibition purposes, will appreciate this suggestion. Everything from horses down are exhibited there under cover. That is the way it should be in our State Fair grounds, so that we should not be rained out every year. The State should put up such a building so that the live stock can be exhibited without exposure to the animals. As a member of the State Board of Agriculture I feel that the members of that Board are simply the servants of the people of the State, and really the servants of the exhibitors. The members of the Board are doing everything they can with the limited resources they have to fit up accommodations. It is impossible to do what is needed by the entrance fees. We need such an appropriation as Colonel Wallace spoke of. Indiana is behind her neighboring States in this particular. I believe the organization suggested by Professor Skinner would be the proper organization to come before the Legislature; that would make a suitable impression upon them, and would probably secure a good appropriation.

Mr. John Tillson: I think it would be a good idea to have one general head for that organization. This week we have five or six organizations holding meetings here in the State House. I think they could with advantage hold one general meeting each day. I now move you that a committee be appointed to confer with these different meetings in order to unite on some plan for an association such as Professor Skinner spoke of. If you can get these people interested in it, I think you can have such an association. I don't think that we as State Fair managers ought to take too prominent a part in this, but I think we should join with the other organizations to form such an association.

Mr. Tillson's motion was seconded and carried.

Mr. Hadley: I think Professor Skinner should take charge of this matter while he is here, and then at the end of this meeting call a meeting of all the associations here in this room to perfect the organization he proposes.

President Thompson appointed the following committee, as provided for in Mr. Tillson's motion: Mr. John Tillson, Mr. Oscar Hadley and Mr. David Wallace.

Mr. Tillson asked leave to withdraw from the committee, and Mr. Joe Cunningham was appointed in his place.

Professor Skinner: It is the plan, where these committees are appointed, to give each association notice of the time the general committee will meet. We will try to have the meeting in this room some time later in the week. I will inform Secretary Downing and President Thompson as to the time, so that we can arrange to meet at a common hour.

The session was then adjourned.

SECOND SESSION—STATE BOARD OF AGRICULTURE.

The second session was called to order at 10 o'clock, a. m., Wednesday, January 6th, by President Thompson.

The following report of the Committee on Credentials was read by Secretary Downing:

REPORT OF COMMITTEE ON CREDENTIALS.

To the President and Members of the Indiana State Board of Agriculture, and Delegates to the Indiana State Board of Agriculture:

Gentlemen—We the undersigned Committee on Credentials, beg leave to submit the following list of delegates, who are entitled to vote in this body:

FIRST DISTRICT.

Member of the Board, John C. Haines.

Name of Fair.	*Name of Delegate.*	*Postoffice Address.*
New Harmony	George C. Taylor	New Harmony.
Boonville	Clamon Pelzer	Boonville.
Rockport	John C. Haines	Rockport.
Chrisney	John C. Haines	Rockport.
Evansville	John C. Haines	Rockport.
Gibson Co. H. & A. Society	Albert G. Holcomb	Ft. Branch.

SECOND DISTRICT.

Member of the Board, Mason J. Niblack.

Vincennes Fair	James M. House	Vincennes.

THIRD DISTRICT.

Member of the Board, E. S. Tuell.

Corydon Fair	Sam T. Wolf	Corydon.
Floyd Co. Hort. and Ag. Soc.	Chas. W. Brubeck	Georgetown.
Salem	W. W. Stevens	Salem.
Floyd County Agricultural	Walter E. McCulloch	New Albany.

FOURTH DISTRICT.

Member of the Board, John Tilson.

Bedford Fair	George W. McDaniel	Bedford.
Franklin	John Tilson	Franklin.
Nashville	Mr. Miller	Nashville.
Johnson Co. Hort. Assn	I. N. Brown	Franklin.

FIFTH DISTRICT.

Member of the Board, H. L. Nowlin.

Osgood	J. E. McDonald	Ligonier.
Lawrenceburg	H. L. Nowlin	Lawrenceburg.

SIXTH DISTRICT.

Member of the Board, Knode Porter.

Columbus	Ed Redman	Columbus.
Rushville	John Q. Thomas	Rushville.
Liberty	Milton Maxwell	Liberty.
Hagerstown	Knode Porter	Hagerstown.
Richmond	Knode Porter	Hagerstown.
Wayne Co. A. & H. Ass'n	Knode Porter	Hagerstown.

SEVENTH DISTRICT.

Member of the Board, Sid Conger.

Anderson	C. K. McCullough	Anderson.
Middletown	Knode Porter	Hagerstown.
New Castle	W. L. Risk	New Castle.
Shelbyville	Sid Conger	Shelbyville.

EIGHTH DISTRICT.

Member of the Board, David Wallace.

State Horticultural Society	W. W. Stevens	Salem.
Marion Co. H. & A. Society	Frank P. Johnson	Howlands.

NINTH DISTRICT.

Member of the Board, W. T. Beauchamp.

Brazil	W. T. Beauchamp	Indianapolis.
Terre Haute	W. T. Beauchamp	Indianapolis.
Newton	A. C. Schermerhorn	Newton.
Covington	W. F. Hulet	Crawfordsville.
Cayuga	M. A. McDonald	West Lebanon.
Newport	M. A. McDonald	West Lebanon.
Riley	W. T. Beauchamp	Indianapolis.

TENTH DISTRICT.

Member of the Board, Oscar Hadley.

Danville	C. L. Thompson	Danville.
Crawfordsville	W. T. Gott	Crawfordsville.
Lebanon	Lon Varntz	Lebanon.

ELEVENTH DISTRICT.

Member of the Board, M. S. Claypool.

Muncie	M. S. Claypool	Muncie.
Portland	Geo. W. Bergman	Portland.

TWELFTH DISTRICT.

Member of the Board, W. M. Blackstock.

Boswell	C. W. Travis	Lafayette.
Lafayette	J. M. Cason	Lafayette.
Lafayette Racing Ass'n	M. A. McDonald	West Lebanon.

THIRTEENTH DISTRICT.

Member of the Board, John L. Thompson.

Fairmount	E. J. Seale	Fairmount.
Swayzee	John L. Thompson	Gas City.
Tipton	W. L. Berryman	Tipton.

FOURTEENTH DISTRICT.

Member of the Board, Joseph Cunningham.

Rochester	Arch Stinson	Rochester.

FIFTEENTH DISTRICT.

Member of the Board, C. B. Benjamin.

Bourborn	B. F. Cook	Bourbon.
Bremen	B. W. Parks	Bourbon.
Crown Point	Fred Wheeler	Crown Point.

SIXTEENTH DISTRICT.

Member of the Board, James E. McDonald.

Ft. Wayne	Geo. V. Kell	Ft. Wayne.
Angola.	Clyde C. Carlin.	Angola.
Kendallville	Don K. Hitchcock	Brimfield.
Noble Co. Hort. Society	John M. Schermerhorn	Brimfield.
Allen Co. Hort. Society	Geo. V. Kell	Ft. Wayne.

Respectfully submitted,

M. A. McDONALD,
W. T. BEAUCHAMP,
OSCAR HADLEY,
Committee on Credentials.

On motion of Mr. Niblack the report of the committee was adopted as read.

The Auditing Committee made the following report:

REPORT OF AUDITING COMMITTEE.

To the Members and Delegates of the Indiana State Board of Agriculture:

Your committee, to whom was referred the duty of auditing the books, accounts and reports of the Secretary and Treasurer of the Indiana State Board of Agriculture, have carefully examined them and find they are correct.

Your committee recommends that all accounts of moneys received from the various sources should be grouped together and the same should be made a matter of record for convenience and future reference.

KNODE PORTER,
M. S. CLAYPOOL,
JOE CUNNINGHAM,
Auditing Committee.

The Committee on President's Address made the following report:

Report not on file.

The President announced that the next order of business was the nomination of officers, and that nominations from the First District, Second District, Third District, Fourth District, Eighth District, Fourteenth District, Fifteenth District and Sixteenth District were in order.

Mr. Hickman placed in nomination the name of John C. Haines for member of the Board for the First District. Mr. Helsey placed in nomination the name of Mason J. Niblack for member of the Board for the Second District. Mr. Wolf placed in nomination the name of Ed S. Tuell for member of the Board for the Third District. Mr. L. B. Clore placed in nomination the name of John Tillson for member of the Board for the Fourth District. M. A. McDonald placed in nomination the name of David Wallace for member of the Board for the Eighth District. The name of Joseph Cunningham was placed in nomination for member of the Board for the Fourteenth District. The names of C. B. Benjamin and W. B. Parks were placed in nomination for members of the

Board for the Fifteenth District. The name of Jas. E. McDonald was placed in nomination for member of the Board for the Sixteenth District.

After these nominations were made the President declared the nominations closed.

Thereupon the President announced that the meeting proceed to the election of members for the districts named.

Upon motion, duly seconded, it was ordered that in all cases where there was but one nomination in a district that the Secretary be instructed to cast the entire vote of the meeting for the nominees. The election then proceeded.

John C. Haines being the only candidate for member from the First District, the Secretary was instructed to and did cast 64 votes for him for member of the First District. The President announced that Mr. Haines, having received the entire vote of the delegates, was elected a member of the Board for the First District for the ensuing term.

Mason J. Niblack being the only nominee for the Second District, the Secretary was instructed to and did cast 64 votes, the entire votes of the delegates, for him for member of the Second District, and the President declared Mr. Niblack duly elected for member of the Board for the Second District for the ensuing term.

Ed S. Tuell being the only nominee for the Third District, the Secretary was instructed to and did cast 64 votes for him, and the President announced that Mr. Tuell, having received the entire vote of the delegates, was elected a member of the Board for the Third District for the ensuing term.

John Tillson being the only nominee for the Fourth District, the Secretary was instructed to and did cast 64 votes for him, and the President announced that Mr. Tilson, having received the entire vote of the delegates, was elected a member of the Board for the ensuing term.

David Wallace being the only nominee for the Eighth District, the Secretary was instructed to and did cast the entire vote of the delegates for him, and the President announced that Mr. Wallace, having received the entire vote, was elected member of the Board for the Eighth District for the ensuing term.

Joseph Cunningham being the only nominee for the Fourteenth District, the Secretary was instructed to and did cast 64 votes for him, the entire votes of the delegates, and the President declared Mr. Cunningham duly elected for member of the Board for the Fourteenth District for the ensuing term.

The President announced that C. B. Benjamin and W. B. Parks were the nominees for member of the Board for the Fifteenth District and directed the delegates to prepare ballots. A ballot being taken, resulted as follows: C. B. Benjamin received 45 votes, W. B. Parks received 15 votes and Ed S. Tuell 4 votes. The President announced that Mr. Benjamin, having received the majority of the votes cast, was duly elected a member of the Board for the Fifteenth District for the ensuing term.

The President announced that James E. McDonald was the only nominee for member of the Board for the Sixteenth District and on motion, duly seconded, the Secretary cast 64 votes, being the entire vote of the delegates present, for Mr. McDonald, and the President declared Mr. McDonald duly elected member of the Board for the Sixteenth District for the ensuing term.

There being no further business, on motion, the meeting adjourned sine die.

The Indiana State Board of Agriculture met in the Secretary's office on January 6, 1904, for the purpose of closing up the business of the Board for the past year before the reorganization of the new Board. The President, John L. Thompson, called the meeting to order, and upon the call of the roll all of the officers and members of the Board responded to their names.

A letter from Dr. Light in regard to the injury of Mr. Geo. Hubbard, an employe of the Board at the fair grounds, was read and presented to the Board. After a statement made by the Secretary and Custodian of the grounds, showing how the injury to Mr. Hubbard occurred, was made, on motion of Mr. Beauchamp, seconded by Mr. Wallace, the claim was disallowed and rejected.

On motion of Mr. Wallace, the claim of C. H. Shank for police meal tickets was allowed, and the Secretary ordered to draw an order on the Treasurer for the amount.

The President, Mr. Thompson, made a few remarks to the members of the Board on retiring as president of the Board.

On motion of Mr. Niblack, duly seconded, the Board adjourned sine die.

The newly elected members of the Board and those holding over met in the room of the Secretary on the evening of January 6, 1904, for the purpose of organizing the Board for the ensuing year.

The Secretary called the roll and the members responded as follows: First District, John C. Haines; Second District, Mason J. Niblack; Third District, Ed S. Tuell; Fourth District, John Tillson; Fifth District, H. L. Nowlin; Sixth District, Knode Porter; Seventh District, David Wallace; Eighth District, Sid Conger; Ninth District, W. T. Beauchamp; Tenth District, Oscar Hadley; Eleventh District, M. S. Claypool; Twelfth District, W. M. Blackstock; Thirteenth District, John L. Thompson; Fourteenth District, Joseph Cunningham, Fifteenth District, C. B. Benjamin, and Sixteenth District, Jas. E. McDonald.

All of the members of the Board being present, upon motion of Mr. Niblack, Mr. John L. Thompson was selected as chairman of the meeting during the organization of the Board.

On motion of Mr. Beauchamp, Mr. Downing was selected to act as Secretary during the organization of the Board.

The chairman announced that the first thing in order was the election of a President for the ensuing year. Thereupon Mason J. Niblack placed in nomination the name of Mr. John C. Haines, of Rockport, for President, which motion was duly seconded by Mr. Beauchamp.

There being no other nominations, on motion of Mr. Wallace, seconded by Mr. McDonald, the election of Mr. Haines as President for the ensuing year was made unanimous. And thereupon the chairman declared Mr. Haines duly elected the President of the Board for the ensuing term.

The President announced that the next thing in order was the election of a Vice-President, and thereupon Mr. McDonald placed in nomination the name of Mr. David Wallace for Vice-President. Mr. Wallace being the only nominee, on motion of Mr. McDonald, duly seconded, the election of Mr. Wallace was made by acclamation and he was declared duly elected Vice-President for the ensuing year.

The President then announced the next thing in order was the election of the Secretary, and Mr. McDonald placed in nomination the name of Mr. Downing. There being no other candidates, on motion duly seconded by Mr. Nowlin, the election of Mr. Downing was made by acclamation, and the President declared Mr. Downing duly elected Secretary for the ensuing year.

The President then announced the election of the Treasurer next in order, and thereupon Mr. Hadley placed in nomination the name of Mr. J. W. Lagrange for Treasurer for the ensuing year. On motion of Mr. Blackstock, duly seconded, the election of Mr. Lagrange was made by acclamation and the President declared him duly elected Treasurer of the Board for the ensuing term.

After the election of the officers, Messrs. McDonald and Conger made some remarks on the subject of enlarging the duties of the

Secretary so as to allow him to become General Manager as well as Secretary.

On motion of Mr. Conger, duly seconded, the election of Superintendent of the fair grounds was postponed until the next meeting.

On motion of Mr. Niblack, seconded by Mr. Wallace, the President was given the right to select the Executive Committee of the Board for the ensuing year.

At this point in the meeting Mr. John C. Haines, the newly elected President was conducted to the chair and assumed the duties of President of the Board.

On motion of Mr. McDonald, seconded by Mr. Wallace, the matter of outlining a plan to extend the duties of the Secretary so as to make him General Manager was referred to the Executive Committee, to report at the next meeting in February.

On motion of Mr. Conger, seconded by Mr. McDonald, it was decided that if a fair be held that it be held on the week of September 12, 1904.

Mr. Albert W. Wishard, attorney, who has charge of the claim of the Board against the United States Government, made a verbal report to the Board of the condition of the claim.

Mr. McDonald moved the adoption of the following resolution, which was duly seconded and adopted, to wit:

Whereas, There is a strong sentiment on the part of this Board in favor of not holding a State Fair in 1904, and

Whereas, There are many difficulties in the way of managing a successful meeting on account of the World's Fair at St. Louis, which will to a large measure cut down the attendance and patronage from the outlying parts of the State, and

Whereas, This Board believes that they can not meet these contingencies at this session, be it

Resolved, That it is the sense of the Board that no State Fair be held in Indianapolis in 1904 unless substantial aid and assistance be vouchsafed by the mercantile, manufacturing and business interests of the city, and

Resolved, That the question of holding the State Fair be made a special order for the opening session of the meeting of this Board on Wednesday, February 3, 1904, at 1:30 o'clock p. m.

JAMES E. McDONALD.

On motion, it was ordered that all matters undisposed of be referred to the Executive Committee.

On motion, the Board adjourned to meet on the call of the President.

The Indiana State Board of Agriculture met pursuant to the call of the President on February 3, 1904, at the rooms of the Indiana State Board of Agriculture in the Capitol building in the city of Indianapolis, Indiana. The meeting was called to order by the President, Hon. John C. Haines, and upon the roll call all of the officers and members of the Board responded to their names.

Mr. Hilton U. Brown, representing the Wholesale Merchants' Association, the Commercial Club and the Retail Dealers' Association, and Messrs. Bliss, Badger, Bookwalter, Hoover, Gaven, Hatch, Perry and Richards, members of the above named associations, were present and addressed the Board on the subject of holding the Indiana State Fair in 1904, giving their reasons therefor.

Clore & Overstreet, of Franklin, Indiana, made an application for the use of certain grain jars, and on motion of Mr. M. S. Claypool, duly seconded, they were given the use of the jars owned by the Board, which were stored at the fair grounds, for their exhibit at the World's Fair at St. Louis, with the agreement that they be returned in good order after the fair.

On motion of Mr. Thompson, seconded by Mr. Claypool, the President appointed a committee composed of the President, Messrs. Wallace, Conger, Thompson, Claypool and Niblack to confer with the officers and directors of the Commercial Club at 4 o'clock p. m.

The President appointed the following committee on fees and salaries for the ensuing year, namely, Messrs. Blackstock, Nowlin and Porter.

The Board then proceeded to revise the premium list for the ensuing year. Not having time to conclude the same today, the Board, on motion of Mr. Tillson, adjourned to meet at 9:30 a. m. tomorrow.

Wednesday morning, February 4, 1904, 9:30 a. m., the Board reconvened with Mr. John C. Haines, President, in the chair, and upon call of the roll all of the officers and members of the Board were present.

Mr. McDonald moved that the premium list of 1903 be scaled 10 per cent., which motion was seconded by Mr. Thompson, and upon being put to a vote, was lost.

Mr. Hugh McGowan, President of the Union Traction Company and the Indianapolis Street Railway Company, appeared before the Board and made some remarks urging the Board to hold a State Fair in 1904 and guaranteeing to it if the Board would decide to hold the State Fair.

On motion of Mr. Wallace, it was ordered by the Board that the duplicating of prizes in the cattle classes should be the same as the year 1903.

Mr. Niblack moved that the Indiana State Board of Agriculture hold a State Fair this year. Which motion was seconded by Mr. Beauchamp, and upon a vote being taken, the President declared the motion carried.

Messrs. Finley, Harvey Stern and D. B. Winchester made application to the Board for the position of Custodian for the ensuing year. On motion of Mr. McDonald, duly seconded, Mr. D. B. Winchester was employed as Custodian for 1904 at the salary of $40 a month and fuel such as could be gotten out of fallen trees on the fair grounds.

On motion of Mr. McDonald, seconded by Mr. Wallace, the Secretary was instructed to notify persons holding leases for exhibit pavilions which have expired that they must make new contracts running for three years, and also to notify the owners of buildings to repair and repaint the buildings of a uniform color to be designated by the Board. It was also ordered that the Executive Committee be instructed to replat the grounds for exhibition purposes, and that the grounds between the administration building and the grand stand be designated and set apart for the use of the newspapers.

Mr. Wallace moved that $300 be set apart for goat classes, which motion was duly seconded. Mr. McDonald moved that the motion of Mr. Wallace be laid upon the table, which motion being put to vote was carried.

The Committee on Fees and Salaries of Officers reported as follows:

Your Committee on Fees and Salaries have considered the matters relating thereto, and would recommend that as officers of your Board the salary of the Secretary be eighteen hundred dollars ($1,800), and for stenographer and clerk employes a sum for expenses not to exceed four hundred dollars ($400)). For Treasurer, the sum of five hundred and fifty dollars ($550), he to pay salary of persons employed by him. For janitor, forty dollars ($40) per month, with the usual concession of house for residence, etc. For members, a per diem salary of five dollars ($5) per day, mileage 10 cents per mile one way and hotel expenses not to exceed two dollars and fifty cents ($2.50) per day. For Superintendent, five dollars ($5) per day and railroad fares.

Respectfully submitted,

W. M. BLACKSTOCK,
H. L. NOWLIN,
KNODE PORTER.

On motion of Mr. Thompson, duly seconded, the report was adopted.

Mr. A. W. Wishard appeared before the Board and stated the condition of the claim of the Board against the United States Government.

On motion of Mr. Wallace, seconded by Mr. Thompson, it was ordered that the Secretary issue a warrant to Mr. Wishard for $100 for expenses in looking after said claim.

On motion of Mr. Claypool, seconded by Mr. Wallace, the Secretary was made General Manager of the Board.

On motion of Mr. Wallace, seconded by Mr. Claypool, Mr. E. H. Peed was elected Superintendent.

On motion of Mr. McDonald the matter of the bonds of the Secretary and Treasurer was referred to the Executive Committee, and the Secretary's bond was fixed at $5,000 and the Treasurer's bond at $20,000.

On motion, it was ordered that $5 be sent to Mr. Trone, Secretary and President of the Exhibitor's Union, to defray expenses of the officers in their efforts to secure better railroad rates for exhibitors of State Fairs.

On motion, duly seconded, the rates for the use of the fair grounds for picnic and other purposes were fixed as follows: For the use of the grounds, grand stand and track, $100; for the use of the grounds and grand stand, $75; and for the use of the grounds only, $50.

On motion, the rates for the rental of the training barns were fixed at $25 per month for barns on the south side and $20 for barns on the north side. A monthly rate was fixed at $2 per head for horses on the south side and $1.50 per head for horses on the north side.

On motion of Mr. Claypool, it was ordered that lofts be put in the horse barns and in one section in each end of the cattle barns.

On motion, Mr. Thompson was authorized and instructed to buy a manure spreader for the grounds.

On motion of Mr. Thompson, duly seconded by Mr. Wallace, Mr. Claypool was empowered to purchase a mule team for use at the fair grounds, and he was given power to dispose of the team of mares now owned by the Board.

On motion of Mr. Thompson, seconded by Mr. McDonald, the matter of resoiling the mile track was referred to the Executive Committee, with power to act.

On motion of Mr. McDonald, all matters unfinished were referred to the Executive Committee.

On motion, duly seconded, the Board adjourned.

The following is a complete list of all awards made at the Indiana State Fair of 1903.

INDIANA STATE FAIR, 1903.

SPEED PROGRAM.

M. S. Claypool, Muncie, Ind., Superintendent.
Robert N. Newton, Yorkville, Ill., Starting Judge.

C. W. **Travis**,
O. L. **Boor**,
E. R. **Stoll**, } Judges.

E. R. **Stoll**, Timer.

Charles Downing, Clerk of Course.

AWARDS.

TUESDAY, SEPTEMBER 15.

2:30 Trot—$600 divided, $300, $150, $90, $60.

Laundry Boy, b. g	1
Ned S, b. g	2
Bessie Kenney, b. m	3
Grocery Maid, b. m	4
Little Baron, b. g	5
Clarence C, b. g	6
John F, b. g	7

Loyal Baron, blk. h	8
Gayoso, b. m	9
High Star, ch. g	10
Belle Rose, b. m	11
Beachwood, ch. h	dis.
Maud K, br. m	dis.

TIME.

	¼ Mile	½ Mile	¾ Mile	Mile
First heat	:36	1:09	1:44	2:19

2:08 Pace—$900 divided—$450, $225, $135, $90.

Foxie Curd, blk. m	1
Fred-the-Kid, b. h	2
Robert I, ch. h	3
Larry Ginter, b. h	4
Byre Wilkes, br. g	5
Milton S, b. h	6
Col Loomis, b. h	7
Red Patchen, ch. h	8
Baron Rogers, br. g	9
Salem, br. g	10
Jolisco, gr. g	dis.

TIME.

	¼ Mile	½ Mile	¾ Mile	Mile
First heat	:31	1:02	1:35	2:07½

Before these races could be finished it began raining and continued to rain until the track was not in fit condition to race over. The track remained in bad condition on account of continued rain September 16 and 17, and Friday, September 18, the Board declared the races ended and ordered that the purse be divided as the horses ranked at the end of the first heat, which was done.

On account of continued rain on Wednesday and Thursday, the mile track was unfit and unsafe for horses to race over.

In order to entertain the people who came to the fair, the Board directed Mr. Claypool, the Superintendent of the Speed

Department, to arrange for four races to be contested over the half-mile track, under such conditions as he deemed for the best interests of the Board.

Under these directions the Superintendent arranged for four races as follows:

2:12 class for trotters	purse	$400
2:20 class for trotters	purse	400
2:17 class for pacers	purse	400
2:25 class for trotters	purse	400

The result of these races was as follows:

THURSDAY, SEPTEMBER 17.

2:20 Trot—Purse $400.

Allen W, b. g	1	1	1
Robert P, b. g	2	3	2
Poindexter, ch. h	4	2	3
Loyal Baron, bl. h	3	4	4
Anna W, b. m	5	5	5
Wardham, ch. g	6	6	dr.

TIME.

First heat	2:22½
Second heat	2:24¼
Third heat	2:25¼

2:12 Trot—Purse $400.

Miss Adrian, bl. m	1	1	1
Norman B, bl. g	2	2	4
Angiola, b. m	4	4	2
Pat Ford, ch. g	3	3	3

TIME.

First heat	2:19¼
Second heat	2:22½
Third heat	2:22½

FRIDAY, SEPTEMBER 18.

2:17 Pace—Purse $400.

Black Pet, bl. m	1	1	1
Ethel Mc., ch. m	2	2	4
Pine Bush, br. g	3	6	2
Miss Coleridge, b. m	4	3	3
Doctor Tanner, ch. h	5	4	5
Major Hendricks, b. g	7	5	6
Rosa G. May, ch. m	6	dr.	

TIME.

First heat	2:16
Second heat	2:15¼
Third heat	2:14¼

2:25 Trot—Purse $400.

Bermuda Maid, br. m	1	1	1
Loyal Baron, bl. h	2	2	3
Belle Rose, ch. m	4	3	2
Anna W, b. m	3	4	4
Ella May, ch. m	5	5	dr.

TIME.

First heat	2:25½
Second heat	2:23¼
Third heat	2:26

HORSES.

CLASS 1. FRENCH DRAFT AND PERCHERON.

(M. A. McDonald, Judge, West Lebanon, Ind.)

STALLIONS.

Four years old and over, Crouch & Son, Lafayette, Ind	$25 00
Second premium, Lew W. Cochran, Crawfordsville, Ind	15 00
Third premium, McLaughlin Bros., Columbus, Ohio	10 00
Three years old and under four, McLaughlin Bros., Columbus, Ohio	15 00

Second premium, Crouch & Son, Lafayette, Ind	10 00
Third premium, McLaughlin Bros., Columbus, Ohio	6 00
Two years old and under three, McLaughlin Bros., Columbus, Ohio	12 00
Second premium, A. P. Nave, Attica, Ind	8 00
Third premium, Crouch & Son, Lafayette, Ind	5 00
One year old and under two, McLaughlin Bros., Columbus, Ohio	10 00

MARES AND FILLIES.

Four years old and over, A. P. Nave, Attica, Ind	25 00
Second premium, McLaughlin Bros., Columbus, Ohio	15 00
Third premium, Singmaster & Spradling, Frankfort, Ind	10 00
Three years old and under four, A. P. Nave, Attica, Ind	15 00
Second premium, McLaughlin Bros., Columbus, Ohio	10 00
Two years old and under three, A. P. Nave, Attica, Ind	12 00
Second premium, A. P. Nave, Attica, Ind	8 00
Third premium, A. P. Nave, Attica, Ind	5 00

CLASS 2. CLYDESDALE AND ENGLISH SHIRE.

(M. A. McDonald, Judge, West Lebanon, Ind.)

STALLIONS.

Four years old and over, Austin Roberts, Westfield, Ind	$25 00
Second premium, Dr. Geo. Sangster, Monticello, Ind	15 00
Third pemium, Lawrence Importing & Breeding Horse Co., Lawrence, Ind.	10 00
Three years old and under four, Dr. Geo. Sangster, Monticello, Ind.	15 00
Second premium, W. H. Lagrange & Son, Franklin, Ind	10 00
One year old and under two, E. M. Pickard, Summitville, Ind	10 00
Second premium, E. M. Pickard, Summitville, Ind	6 00
Stallion showing four best colts under four years old, W. H. Lagrange & Son, Franklin, Ind	25 00

MARES AND FILLIES.

Four years old and over, W. H. Lagrange & Son, Franklin, Ind	$25 00
Second premium, W. H. Lagrange & Son, Franklin, Ind	15 00
Third premium, E. M. Pickard, Summitville, Ind	10 00
Three years old and under four, W. H. Lagrange & Son, Franklin, Ind.	15 00
Second premium, W. H. Lagrange & Son, Franklin, Ind	10 00
Third premium, E. M. Pickard, Summitville, Ind	6 00
Two years old and under three, E. M. Pickard, Summitville, Ind.	12 00

One year old and under two, W. H. Lagrange & Son, Franklin, Ind.	10 00
Mare and two of her progeny three years old and under, W. H. Lagrange & Son, Franklin, Ind	25 00
Second premium, E. M. Pickard, Summitville, Ind	15 00
Third premium, W. H. Lagrange & Son, Franklin, Ind	10 00

CLASS 3. BELGIANS.

(M. A. McDonald, Judge, West Lebanon, Ind.)

STALLIONS.

Four years old and over, Crouch & Son, Lafayette, Ind	$25 00
Second premium, H. & H. Wolf, Wabash, Ind	15 00
Third premium, Frisinger & Co., Dectaur, Ind	10 00
Three years old and under four, Crouch & Son, Lafayette, Ind	15 00
Second premium, McLaughlin Bros., Columbus, Ohio	10 00
Third premium, Frisinger & Co., Decatur, Ind	6 00
Two years old and under three, Frisinger & Co., Decatur, Ind	12 00
Second premium, Crouch & Son, Lafayette, Ind	8 00
Third premium, Frisinger & Co., Decatur, Ind	5 00
One year old and under two, Frisinger & Co., Decatur, Ind	10 00

CLASS 4. CLEVELAND BAY, HACKNEY AND AMERICAN COACH.

(M. A. McDonald, Judge, West Lebanon, Ind.)

STALLIONS.

Four years old and over, J. R. Peak & Son, Winchester, Ill	$25 00
Second premium, Crouch & Son, Lafayette, Ind	15 00
Three years old and under four, Crouch & Son, Lafayette, Ind	15 00
Second premium, J. R. Peak & Son, Winchester, Ill	10 00
Third premium, J. W. White, Greensburg, Ind	6 00
Two years old and under three, Dr. Geo. Sangster, Monticello, Ind.	12 00
Second premium, S. J. Peabody, Columbia City, Ind	8 00
Third pemium, J. R. Peak & Son, Winchester, Ill	5 00
One year old and under two, J. R. Peak & Son, Winchester, Ill	25 00
Stallion showing four best colts under four years old, J. R. Peak & Son, Winchester, Ill	25 00

MARES AND FILLIES.

Four years old and over, J. R. Peak & Son, Winchester, Ill	25 00
Second premium, J. R. Peak & Son, Winchester, Ill	15 00
Third premium, Dr. Geo. Sangster, Monticello, Ind	10 00

Three years old and under four, J. R. Peak & Son, Winchester, Ill.	15 00
Second premium, Dr. Geo. Sangster, Monticello, Ind	10 00
Third premium, J. R. Peak & Son, Winchester, Ill	6 00
Two years old and under three, J. R. Peak & Son, Winchester, Ill.	12 00
Second premium, Dr. Geo. Sangster, Monticello, Ind	8 00
One year old and under two, J. R. Peak & Son, Winchester, Ill.	10 00
Second premium, Dr. Geo. Sangster, Monticello, Ind	6 00
Third premium, Dr. Geo. Sangster, Monticello, Ind	4 00

CLASS 5. FRENCH AND GERMAN COACH.

(M. A. McDonald, Judge, West Lebanon, Ind.)

STALLIONS.

Four years old and over, Crouch & Son, Lafayette, Ind	$25 00
Second premium, Crouch & Son, Lafayette, Ind	15 00
Third premium, Crouch & Son, Lafayette, Ind	10 00
Three years old and under four, Crouch & Son, Lafayette, Ind.	15 00
Second premium, Crouch & Son, Lafayette, Ind	10 00
Third premium, Crouch & Son, Lafayette, Ind	6 00
Two years old and under three, Crouch & Son, Lafayette, Ind.	12 00
Second premium, Crouch & Son, Lafayette, Ind	8 00

MARES AND FILLIES.

Four years old and over, Crouch & Son, Lafayette, Ind	25 00
Second premium, Crouch & Son, Lafayette, Ind	25 00

CLASS 6. GRADE DRAFT.

(M. A. McDonald, Judge, West Lebanon, Ind.)

Gelding or mare two years old and under three, Dr. Geo. Sangster, Monticello, Ind	$10 00
Best span heavy draft horses, A. P. Nave, Attica, Ind	30 00
Second premium, W. H. Lagrange & Son, Franklin, Ind	20 00
Third premium, E. M. Pickard, Summitville, Ind	10 00

CLASS 7. STANDARD BRED HORSES.

(G. W. Bell, Judge, Chicago, Ill.)

STALLIONS.

Four-years old and over, Margrave Farm, Terre Haute, Ind	$25 00
Second premium, J. R. Peak & Son, Winchester, Ill	15 00

Third premium, Spring Hill Stock Farm, Delphi, Ind	10 00
Three years old and under four, J. R. Peak & Son, Winchester, Ill.	15 00
Second premium, Spring Hill Stock Farm, Delphi, Ind	10 00
Third premium, W. T. Wilson, Indianapolis, Ind	6 00
Two years old and under three, S. R. Holt, Indianapolis, Ind	12 00
Second premium, J. R. Peak & Son, Winchester, Ill	8 00
Third premium, S. R. Holt, Indianapolis, Ind	5 00
One year old and under two, Margrave Farm, Terre Haute, Ind	10 00
Second premium, Margrave Farm, Terre Haute, Ind	6 00
Third premium, S. R. Holt, Indianapolis, Ind	4 00
Stallion showing four best colts under four years old, J. R. Peak & Son, Winchester, Ill	25 00
Second premium, Margrave Farm, Terre Haute, Ind	15 00
Third premium, S. R. Holt, Indianapolis, Ind	10 00

MARES AND FILLIES.

Four years old and over, Spring Hill Stock Farm, Delphi, Ind	25 00
Second premium, J. R. Peak & Son, Winchester, Ill	15 00
Third premium, A. E. Ashbrook, Kansas City, Mo	10 00
Three years old and under four, Spring Hill Stock Farm, Delphi, Ind	15 00
Second premium, S. R. Holt, Indianapolis, Ind	10 00
Third premium, J. R. Peak & Son, Winchester, Ill	6 00
Two years old and under three, S. R. Holt, Indianapolis, Ind	12 00
Second premium, J. R. Peak & Son, Winchester, Ill	8 00
Third premium, Margrave Farm, Terre Haute, Ind	5 00
One year old and under two, S. R. Holt, Indianapolis, Ind	10 00
Second premium, Margrave Farm, Terre Haute, Ind	6 00
Third premium, J. R. Peak & Son, Winchester, Ill	4 00
Mare and two of her progeny 3 years old or under, S. R. Holt, Indianapolis, Ind	25 00
Second premium, J. R. Peak & Son, Winchester, Ill	15 00
Third premium, J. R. Peak & Son, Winchester, Ill	10 00

CLASS 8. LIGHT HARNESS HORSES.

(G. W, Bell, Judge, Chicago, Ill.)

Gelding four years old and over, A. E. Ashbrook, Kansas City, Mo.	$20 00
Second premium, J. R. Peak & Son, Winchester, Ill	10 00
Third premium, J. N. Dickerson, Indianapolis, Ind	5 00
Mare four years old and over, A. E. Ashbrook, Kansas City, Mo	20 00
Second premium, J. Hutchinson, Crawfordsville, Ind	10 00
Third premium, J. R. Peak & Son, Winchester, Ill	5 00

Mare three years old and under four, Spring Hill Stock Farm, Delphi, Ind	12 00
Second premium, J. R. Peak & Son, Winchester, Ill	8 00
Third premium, J. W. White, Greensburg, Ind	5 00
Mare two years old and under three, Spring Hill Stock Farm, Delphi, Ind	10 00
Second premium, J. R. Peak & Son, Winchester, Ill	7 00
Third premium, Dr. Geo. Sangster, Monticello, Ind	5 00

CLASS 9. GENTLEMEN'S TURNOUT. DEALERS EXCLUDED.

(G. W. Bell, Judge, Chicago, Ill.)

Pair of mares or geldings, not under 15 hands, A. E. Ashbrook, Kansas City, Mo	$25 00
Second premium, J. R. Peak & Son, Winchester, Ill	15 00
Third premium, John Weller, Crawfordsville, Ind	10 00

CLASS 10. GENTLEMEN'S TURNOUT. FOR DEALERS ONLY.

(G. W. Bell, Judge, Chicago, Ill.)

Pair of mares or geldings, not under 15 hands, A. E. Ashbrook, Kansas City, Mo	$25 00
Second premium, A. E. Ashbrook, Kansas City, Mo	15 00
Third premium, J. R. Peak & Son, Winchester, Ill	10 00

CLASS 11. FOR FOUR-IN-HAND.

(G. W. Bell, Judge, Chicago, Ill.)

Best four-in-hand team (mares or geldings) four years old and over, A. E. Ashbrook, Kansas City, Mo	$30 00
Second premium, A. E. Ashbrook, Kansas City, Mo	20 00

CLASS 12. FOR TANDEMS.

(G. W. Bell, Judge, Chicago, Ill.)

Best tandem of horses (mares or geldings), A. E. Ashbrook, Kansas City, Mo.	$20 00
Second premium, G. Howard Davison, Millbrook, N. Y	15 00
Third premium, A. E. Ashbrook, Kansas City, Mo	10 00

CLASS 13. FOR HIGH STEPPERS.

(G. W. Bell, Judge, Chicago, Ill.)

Pair of matched horses (high steppers), A. E. Ashbrook, Kansas City, Mo	$35 00
Second premium, A. E. Ashbrook, Kansas City, Mo	25 00
Third premium, Wm. Dagler, Rushville, Ind	15 00
Single horse, high stepper (mare or gelding), A. E. Ashbrook, Kansas City, Mo	20 00
Second premium, J. & E. Brown, Portage La Prairie, Wis	15 00
Third premium, J. W. Denton, Bloomington, Ill	10 00

CLASS 14. EQUIPAGES.

(G. W. Bell, Judge, Chicago, Ill.)

One horse 1-seated equipage for lady, G. Howard Davison, Millbrook, N. Y	$20 00
Second premium, G. Howard Davison, Millbrook, N. Y	15 00
Third premium, A. E. Ashbrook, Kansas City, Mo	10 00
Vehicle for children, G. Howard Davison, Millbrook, N. Y	20 00
Second premium, Singmaster & Spradling, Frankfort, Ind	15 00
Third premium, C. L. Hare, Indianapolis, Ind	10 00

CLASS 15. COACH AND CARRIAGE PAIR AND ROADSTERS.

(G. W. Bell, Judge, Chicago, Ill.)

Coach or carriage pair, John Weller, Crawfordsville, Ind	$30 00
Second premium, J. R. Peak & Son, Winchester, Ill	20 00
Third premium, A. E. Ashbrook, Kansas City, Mo	10 00
Single roadster (mare), A. E. Ashbrook, Kansas City, Mo	30 00
Second premium, Carrick & Ward, Georgetown, Ky	20 00
Third premium, T. M. Gaitshill, Lexington, Ky	10 00
Single roadster (gelding), M. H. Reardon, Indianapolis, Ind	30 00
Second premium, Hall & Son, Boswell, Ind	20 00
Third premium, T. M. Gaitshill, Lexington, Ky	10 00
Double roadster, A. E. Ashbrook, Kansas City, Mo	30 00
Second premium, J. R. Peak & Son, Winchester, Ill	20 00
Third premium, Hall & Son, Boswell, Ind	10 00

CLASS 16. SADDLE HORSES.

(G. W. Bell, Judge, Chicago, Ill.)

Best saddle stallion, J. W. Denton, Bloomington, Ill	$40 00
Second premium, Nona A. Connolly, Indianapolis, Ind	20 00

Third premium, J. W. Denton, Bloomington, Ill	15 00
Best saddle mare, T. M. Gaitshill, Lexington, Ky	40 00
Second premium, J. W. Denton, Bloomington, Ill	20 00
Third premium, Carrick & Ward, Georgetown, Ky	15 00
Best saddle gelding, T. M. Gaitshill, Lexington, Ky	40 00
Second premium, J. W. Denton, Bloomington, Ill	20 00
Third premium, Carrick & Ward, Georgetown, Ky	15 00
Best ladies' saddle mare or gelding, J. W. Denton, Bloomington, Ill.,	40 00
Second premium, A. E. Ashbrook, Kansas City, Mo	20 00
Third premium, A. E. Buchanan, Indianapolis, Ind	15 00
Best combined harness and saddle mare or gelding, Carrick & Ward, Georgetown, Ky	40 00
Second premium, T. M. Gaitshill, Lexington, Ky	20 00
Third premium, J. W. Denton, Bloomington, Ill	15 00

CHAMPION.

Best saddle stallion, mare or gelding, A. E. Ashbrook, Kansas City, Mo.	50 00

CLASS 17. PONIES. (All Breeds.)

(G. W. Bell, Judge, Chicago, Ill.)

Pony, 11 hands or under, in single harness, C. L. Hare, Indianapolis, Ind.	$15 00
Second premium, E. M. Pickard, Summitville, Ind	10 00
Pony, 11 to 13 hands, in single harness, G. Howard Davison, Millbrook, N. Y	15 00
Second premium, G. Howard Davison, Millbrook, N. Y	10 00
Pony, 13 to 14½ hands, in single harness, G. Howard Davison, Millbrook, N. Y	15 00
Second premium, G. Howard Davison, Millbrook, N. Y	10 00
Mare and colt, Clara Hadley, Bridgeport, Ind	15 00
Pair ponies, 13 to 14½ hands, in harness, G. Howard Davison, Millbrook, N. Y	15 00
Second premium, G. Howard Davison, Millbrook, N. Y	10 00
Ponies, tandem, G. Howard Davison, Millbrook, N. Y	15 00
Second premium, C. L. Hare, Indianapolis, Ind	10 00

CATTLE. (Beef Breeds.)

CLASS 18. SHORTHORNS.

(C. L. Gerlaugh, Judge, Osborne, Ohio.)

BULLS.

Three years old and over, W. F. Christian & Son, Indianapolis, Ind.	$25 00
Second premium, Moorman & Miller, Winchester, Ind	15 00
Second premium, Baird Bros., Wallen, Ind	5 00
Two years old and under three, F. W. Harding, Waukesha, Wis	20 00
Second premium, E. W. Bowen, Delphi, Ind	10 00
One year old and under two, F. W. Harding, Waukesha, Wis	15 00
Second premium, Geo. Kirk & Son, Anderson, Ind	6 00
Third premium, J. G. Robbins & Sons, Horace, Ind	3 00
Calf, under one year old, J. G. Robbins & Sons, Horace, Ind	8 00
Second premium, F. W. Harding, Waukesha, Wis	3 00
Third premium, E. W. Bowen, Delphi, Ind.	2 00

COWS AND HEIFERS.

Three years old and over, F. W. Harding, Waukesha, Wis	$25 00
Second premium, E. W. Bowen, Delphi, Ind	15 00
Third premium, W. F. Christian & Son, Indianapolis, Ind	5 00
Two years old and under three, E. W. Bowen, Delphi, Ind	20 00
Second premium, J. G. Robbins & Sons, Horace, Ind	10 00
Third premium, F. W. Harding, Waukesha, Wis	4 00
One year old and under two, E. W. Bowen, Delphi, Ind	15 00
Second premium, J. G. Robbins & Sons, Horace, Ind	6 00
Third premium, F. W. Harding, Waukesha, Wis	3 00
Calf, under one year, F. W. Harding, Waukesha, Wis	8 00
Second premium, J. G. Robbins & Sons, Horace, Ind	3 00
Third premium, J. G. Robbins & Sons, Horace, Ind	2 00
Four animals, either sex, the get of one sire, J. G. Robbins & Sons, Horace, Ind.	20 00
Second premium, F. W. Harding, Waukesha, Wis	10 00
Third premium, E. W. Bowen, Delphi, Ind	4 00
Two animals, either sex, the produce of one cow, F. W. Harding, Waukesha, Wis.	20 00
Second premium, F. W. Harding, Waukesha, Wis	10 00
Third premium, Kerlin Bros., Rockfield, Ind	4 00

Exhibitor's herd, F. W. Harding, Waukesha, Wis	50 00
Second premium, E. W. Bowen, Delphi, Ind	25 00
Breeder's herd, F. W. Harding, Waukesha, Wis	50 00
Second premium, J. G. Robbins & Sons, Horace, Ind	25 00
Best fat steer, two years old and under three, C. P. Creek & Sons, Liberty, Ind.	15 00
Second premium, H. J. Sconce, Sidell, Ill	10 00
Third premium, H. J. Sconce, Sidell, Ill	5 00
Best fat steer one year old and under two, H. J. Sconce, Sidell, Ill.	15 00
Second premium, Moorman & Miller, Winchester, Ind	10 00
Third premium, H. J. Sconce, Sidell, Ill	5 00

CHAMPIONS.

Best bull, any age, W. F. Christian & Son, Indianapolis, Ind	25 00
Best cow or heifer, any age, E. W. Bowen, Delphi, Ind	25 00

CLASS 19. SPECIALS BY INDIANA SHORTHORN BREEDERS' ASSOCIATION.

(C. L. Gerlaugh, Judge, Osborne, Ohio.)

Bull dropped between September 1, 1901, and January 1, 1902, Kerlin Bros., Rockfield, Ind	$20 00
Second premium, Frank W. Cotton, Manilla, Ind	15 00
Third premium, Kerlin Bros., Rockfield, Ind	10 00
Fourth premium, Baird Bros., Wallen, Ind	5 00
Bull dropped between January 1, 1902, and September 1, 1902, Geo. Kirk & Son, Anderson, Ind	20 00
Second premium, J. G. Robbins & Sons, Horace, Ind	15 00
Third premium, E. W. Bowen, Delphi, Ind	10 00
Fourth premium, Joe Witter, Liberty, Ind	5 00
Bull dropped between September 1, 1902, and January 1, 1903, J. G. Robbins & Sons, Horace, Ind	20 00
Second premium, E. W. Bowen, Delphi, Ind	15 00
Third premium, J. D. Douglass & Sons, Hope, Ind	10 00
Fourth premium, Frank W. Cotton, Manilla, Ind	5 00
Bull dropped between January 1, 1903, and September 1, 1903, Frank W. Cotton, Manilla, Ind	20 00
Second premium, E. E. Souers, Warren, Ind	15 00
Third premium, J. G. Robbins & Sons, Horace, Ind	10 00
Fourth premium, John G. Gartin & Son, Burney, Ind	5 00
Heifer dropped between September 1, 1901, and January 1, 1902, J. G. Robbins & Sons, Horace, Ind	20 00
Second premium, J. G. Robbins & Sons, Horace, Ind	15 00

Third premium, Frank W. Cotton, Manilla, Ind	10 00
Fourth premium, Kerlin Bros., Rockfield, Ind	5 00
Heifer dropped between January 1, 1902, and September 1, 1902, Geo. Kirk & Son, Anderson, Ind	20 00
Second premium, J. D. Douglass & Son, Hope, Ind	15 00
Heifer dropped between September 1, 1902, and January 1, 1903, J. G. Robbins & Sons, Horace, Ind	20 00
Second premium, J. G. Robbins & Sons, Horace, Ind	15 00
Third premium, W. F. Christian & Son, Indianapolis, Ind	10 00
Fourth premium, E. W. Bowen, Delphi, Ind	5 00
Heifer dropped between January 1, 1903, and September 1, 1903, Frank W Cotton, Manilla, Ind	20 00
Second premium, E. E. Souers, Warren, Ind	15 00
Third premium, J. G. Robbins & Sons, Horace, Ind	10 00
Fourth premium, J. D. Douglass & Son, Hope, Ind	5 00
Steer dropped between September 1, 1901, and September 1, 1902, Moorman & Miller, Winchester	25 00
Second premium, W. F. Christian & Son, Indianapolis, Ind	15 00
Third premium, Moorman & Miller, Winchester, Ind	10 00
Steer dropped since September 1, 1902, Moorman & Miller, Winchester, Ind.	10 00

CLASS 20. HEREFORDS.

(N. H. Gentry, Judge, Sedalia, Mo.)

BULLS.

Three years old and over, W. S. Van Natta & Son, Fowler, Ind	$25 00
Second premium, Overton Harris, Harris, Mo	15 00
Third premium, D. E. Studebaker, Bluffton, Ind	5 00
Two years old and under three, J. C. Adams, Moweaqua, Ill	20 00
Second premium, S. W. Anderson, Baker Mills, W. Va	10 00
Third premium, S. J. Peabody, Columbia City, Ind	4 00
One year old and under two, W. S. Van Natta & Son, Fowler, Ind.	15 00
Second premium, W. S. Van Natta & Son, Fowler, Ind	6 00
Third premium, S. J. Peabody, Columbia City, Ind	3 00
Bull calf, under one year, Overton Harris, Harris, Mo	8 00
Second premium, W. S. Van Natta & Son, Fowler, Ind	3 00
Third premium, S. W. Anderson, Baker Mills, W. Va	2 00

COWS AND HEIFERS.

Three years old and over, Overton Harris, Harris, Mo	$25 00
Second premium, W. S. Van Natta & Son, Fowler, Ind	15 00
Third premium, W. S. Van Natta & Son, Fowler, Ind	5 00

Two years old and under three, W. S. Van Natta & Son, Fowler, Ind.	20 00
Second premium, Overton Harris, Harris, Mo.	10 00
Third premium, Overton, Harris, Harris, Mo.	4 00
One year old and under two, W. S. Van Natta & Son, Fowler, Ind.	15 00
Second premium, Overton Harris, Harris, Mo.	6 00
Third premium, Overton Harris, Harris, Mo.	3 00
Calf, under one year, Overton Harris, Harris, Mo.	8 00
Second premium, Overton Harris, Harris, Mo.	3 00
Third premium, W. S. Van Natta & Son, Fowler, Ind.	2 00
Four animals, either sex, the get of one sire, Overton Harris, Harris, Mo.	20 00
Second premium, W. S. Van Natta & Son, Fowler, Ind.	10 00
Third premium, S. W. Anderson, Baker Mills, W. Va.	4 00
Two animals, either sex, the produce of one cow, Overton Harris, Harris, Mo.	20 00
Second premium, W. S. Van Natta & Son, Fowler, Ind.	10 00
Third premium, S. W. Anderson, Baker Mills, W. Va.	4 00
Exhibitor's herd, Overton Harris, Harris, Mo.	50 00
Second premium, W. S. Van Natta & Son, Fowler, Ind.	25 00
Breeder's herd, Overton Harris, Harris, Mo.	50 00
Second premium, W. S. Van Natta & Son, Fowler, Ind.	20 00
Best fat steer, two years old and under three, Clem Graves, Bunker Hill, Ind.	15 00
Best fat steer one year old and under two, B. E. Keyt, Newtown, Ind.	15 00
Second premium, Clem Graves, Bunker Hill, Ind.	10 00

CHAMPIONS.

Best bull, any age, W. S. Van Natta & Son, Fowler, Ind.	25 00
Best cow or heifer, any age, Overton Harris, Harris, Mo.	25 00

CLASS 21. SPECIALS BY INDIANA STATE HEREFORD BREEDERS' ASSOCIATION.

(N. H. Gentry, Judge, Sedalia, Mo.)

BULLS.

Three years old and over, W. S. Van Natta & Son, Fowler, Ind.	$9 59
Second premium, Overton Harris, Harris, Mo.	7 67
Third premium, D. E. Studebaker, Bluffton, Ind.	6 39
Fourth premium, J. V. & W. S. Hadley, Danville, Ind.	5 11
Fifth premium, H. E. Watson, Edinburg, Ind.	3 19
Two years old and under three, J. C. Adams, Moweaqua, Ill.	9 59

Second premium, S. W. Anderson, Baker Mills, W. Va	7 67
Third premium, S. J. Peabody, Columbia City, Ind	6 39
Fourth premium, J. C. Adams, Moweaqua, Ill	5 11
Fifth premium, S. J. Peabody, Columbia City, Ind	3 19
One year old and under two, W. S. Van Natta & Son, Fowler, Ind.	9 59
Second premium, W. S. Van Natta & Son, Fowler, Ind	7 67
Third premium, S. J. Peabody, Columbia City, Ind	6 39
Fourth premium, D. E. Studebaker, Bluffton, Ind	5 11
Fifth premium, H. E. Watson, Edinburg, Ind	3 19
Junior yearling bull, S. W. Anderson, Baker Mills, W. Va	9 59
Second premium, J. P. Ratcliff & Sons, New Castle, Ind	7 67
Third premium, Clem Graves, Bunker Hill, Ind	6 39
Fourth premium, D. E. Studebaker, Bluffton, Ind	5 11
Fifth premium, J. P. Ratcliff & Sons, New Castle, Ind	3 19
Calf, under one year old, Overton Harris, Harris, Mo	9 59
Second premium, W. S. Van Natta & Son, Fowler, Ind	7 67
Third premium, S. W. Anderson, Baker Mills, W. Va	6 39

COWS AND HEIFERS.

Three years old and over, Overton Harris, Harris, Mo	$9 59
Second premium, W. S. Van Natta & Son, Fowler, Ind	7 67
Third premium, W. S. Van Natta & Son, Fowler, Ind	6 39
Fourth premium, D. E. Studebaker, Bluffton, Ind	5 11
Fifth premium, S. W. Anderson, Baker Mills, W. Va	3 19
Two years old and under three, W. S. Van Natta & Son, Fowler, Ind.	9 59
Second premium, Overton Harris, Harris, Mo	7 67
Third premium, Overton Harris, Harris, Mo	6 39
Fourth premium, S. W. Anderson, Baker Mills, W. Va	5 11
Fifth premium, S. W. Anderson, Baker Mills, W. Va	3 19
One year old and under two, W. S. Van Natta & Son, Fowler, Ind.	9 59
Second premium, Overton Harris, Harris, Mo	7 67
Third premium, Overton Harris, Harris Mo	6 39
Fourth premium, J. P. Ratcliff & Sons, New Castle, Ind	5 11
Fifth premium, J. P. Ratcliff & Sons, New Castle, Ind	3 19
Junior yearling heifer, Overton Harris, Harris, Mo	9 59
Second premium, W. S. Van Natta & Son, Fowler, Ind	7 67
Third premium, D. E. Studebaker, Bluffton, Ind	6 39
Fourth premium, J. C. Adams, Moweaqua, Ill	5 11
Fifth premium, H. E. Watson, Edinburg, Ind	3 19
Calf, under one year old, Overton Harris, Harris, Mo	9 59
Second premium, Overton Harris, Harris, Mo	7 67
Third premium, W. S. Van Natta & Son, Fowler, Ind	6 39
Fourth premium, J. C. Adams, Moweaqua, Ill	5 11

Fifth premium, W. S. Van Natta & Son, Fowler, Ind	3 19
Steer one year old and under two, S. J. Peabody, Columbia City, Ind.	9 59
Grade steer or spayed Martin heifer, two years old and under three, Clem Graves, Bunker Hill, Ind	9 59
Grade steer or spayed Martin heifer, 1 year old and under tow, B. E. Keyt, Newtown, Ind	9 59
Second premium, Clem Graves, Bunker Hill, Ind	5 11
Steer calf under one year old, Clem Graves, Bunker Hill, Ind	9 59
Second premium, C. E. Amsden, Shelbyville, Ind	5 11

CLASS 22. ABERDEEN-ANGUS.

(C. E. Marvin, Judge, Paynes Depot, Ky.)

BULLS.

Three years old and over, C. H. Gardner, Blandsville, Ill	$15 00
Second premium, Wilmer N. Foster, Attica, Ind	10 00
Third premium, Henderson & Sons, Lebanon, Ind	5 00
Two years old and under three, W. A. McHenry, Denison, Iowa	10 00
Second premium, C. H. Gardner, Blandsville, Ind	7 00
Third premium, M. A. Judy, Williamsport, Ind	4 00
One year old and under two, Smith & Chambers, Shelbyville, Ky.	8 00
Second premium, C. H. Gardner, Blandsville, Ill	6 00
Third premium, W. A. McHenry, Denison, Iowa	3 00
Calf, under one year old, M. A. Judy, Williamsport, Ind	5 00
Second premium, C. H. Gardner, Blandsville, Ill	3 00
Third premium, Wilmer N. Foster, Bluffton, Ind	2 00

COWS AND HEIFERS.

Three years old and over, C. H. Gardner, Blandsville, Ill	$15 00
Second premium, W. A. McHenry, Denison, Iowa	10 00
Third premium, M. A. Judy, Williamsport, Ind	5 00
Two years old and under three, C. H. Gardner, Blandsville, Ill	10 00
Second premium, W. A. McHenry, Denison, Iowa	7 00
Third premium, M. A. Judy, Williamsport, Ind	3 00
Calf, under one year old, M. A. Judy, Williamsport, Ind	5 00
Second premium, W. A. McHenry, Denison, Iowa	3 00
Third premium, W. A. McHenry, Denison, Iowa	2 00
Four animals, either sex, the get of one sire, W. A. McHenry, Denison, Iowa	10 00
Second premium, M. A. Judy, Williamsport, Ind	7 00
Third premium, C. H. Gardner, Blandsville, Ill	5 00

Two animals, either sex, the produce of one cow, M. A. Judy, Williamsport, Ind.	10 00
Second premium, W. A. McHenry, Denison, Iowa	7 00
Third premium, C. H. Gardner, Blandsville, Ill	5 00
Exhibitor's herd, C. H. Gardner, Blandsville, Ill	20 00
Second premium, W. A. McHenry, Denison, Iowa	10 00
Breeder's herd, W. A. McHenry, Denison, Iowa	20 00
Second premium, M. A. Judy, Williamsport, Ind	10 00
Best fat steer, two years old and under three, M. A. Judy, Williamsport, Ind.	15 00
Second premium, Lew Kerr, Newtown, Ind	10 00
Best fat steer, one year old and under two, M. A. Judy, Williamsport, Ind.	15 00
Second premium, Lew Kerr, Newtown, Ind	10 00
Third premium, M. A. Judy, Williamsport, Ind	5 00

CHAMPIONS.

Best bull, any age, Smith & Chambers, Shelbyville, Ky	$20 00
Best cow or heifer, any age, C. H. Gardner, Blandsville, Ill	20 00

CLASS 23. SPECIALS FOR INDIANA ABERDEEN-ANGUS BREEDERS.

(C. E. Marvin, Judge, Paynes Depot, Ky.)

BULLS.

Two years old and under three, M. A. Judy, Williamsport, Ind	$7 50
One year old and under two, David Hadley & Son, Danville, Ind	7 50
Second premium, M. A. Judy, Williamsport, Ind	6 50
Third premium, Henderson & Sons, Lebanon, Ind	5 50
Under one year old, M. A. Judy, Williamsport, Ind	7 50
Second premium, Wilmer N. Foster, Attica, Ind	6 50
Third premium, M. A. Judy, Williamsport, Ind	5 50
Fourth premium, Wilmer N. Foster, Attica, Ind	4 50
Fifth premium, David Bradley & Son, Danville, Ind	3 50

COWS AND HEIFERS.

Two years old and under three, M. A. Judy, Williamsport, Ind	7 50
Second premium, M. A. Judy, Williamsport, Ind	6 50
Third premium, Henderson & Sons, Lebanon, Ind	5 50
Fourth premium, Henderson & Sons, Lebanon, Ind	4 50
One year old and under two, M. A. Judy, Williamsport, Ind	7 50
Second premium, M. A. Judy, Williamsport, Ind	6 50

Third premium, David Hadley & Son, Danville, Ind	5 50
Fourth premium, Henderson & Sons, Lebanon, Ind	4 50
Fifth premium, Henderson & Sons, Lebanon, Ind	3 50
Under one year old, M. A. Judy, Williamsport, Ind	7 50
Second premium, M. A. Judy, Williamsport, Ind	6 50
Third premium, Wilmer N. Foster, Attica, Ind	5 50
Fourth premium, Henderson & Sons, Lebanon, Ind	4 50
Fifth premium, Henderson & Sons, Lebanon, Ind	3 50
Young herd, M. A. Judy, Williamsport, Ind	20 00
Second premium, Henderson & Sons, Lebanon, Ind	10 00
Steer two years old and under three, M. A. Judy, Williamsport, Ind.	10 00
Second premium, Lew Kerr, Newtown, Ind	7 50
Steer one year old and under two, M. A. Judy, Williamsport, Ind..	10 00
Second premium, Lew Kerr, Newtown, Ind	7 50
Third premium, M. A. Judy, Williamsport, Ind	5 00
Three best steers shown by one exhibitor, M. A. Judy, Williamsport, Ind	10 00

CLASS 24. POLLED DURHAMS.

(F. W. Harding, Judge, Waukesha, Wis.)

BULLS.

Three years old and over, A. C. Green & Son, Pendleton, Ind	$15 00
Second premium, Fletcher S. Hines, Malott Park, Ind	10 00
Third premium, J. N. Wood & Son, Gardner, Ill	5 00
Two years old and under three, Oscar Hadley, Danville, Ind	10 00
Second premium, J. N. Wood & Son, Gardner, Ill	7 00
One year old and under two, Fletcher S. Hines, Malott Park, Ind..	8 00
Second premium, A. C. Wood & Son, Pendleton, Ind	6 00
Third premium, A. C. Wood & Son, Pendleton, Ind	3 00
Calf, under one year old, Oscar Hadley, Danville, Ind	5 00
Second premium, J. N. Wood & Son, Gardner, Ill	3 00

COWS AND HEIFERS.

Three years old and over, Fletcher S. Hines, Malott Park, Ind	15 00
Second premium, J. N. Wood & Son, Gardner, Ill	10 00
Third premium, A. C. Wood & Son, Pendleton, Ind	5 00
Two years old and under three, Fletcher S. Hines, Malott Park, Ind	10 00
Second premium, A. C. Wood & Son, Pendleton, Ind	7 00
Third premium, J. N. Wood & Son, Gardner, Ill	4 00
One year old and under two, J. N. Wood & Son, Gardner, Ill	8 00
Second premium, A. C. Wood & Son, Pendleton, Ind	6 00

Third premium, Fletcher S. Hines, Malott Park, Ind	3 00
Calf, under one year old, Fletcher S. Hines, Malott Park, Ind	5 00
Second premium, A. C. Wood & Son, Pendleton, Ind	3 00
Third premium, A. C. Wood & Son, Pendleton, Ind	2 00
Four animals, either sex, the get of one sire, A. C. Wood & Son, Pendleton, Ind	10 00
Second premium, J. N. Wood & Son, Gardner, Ill	7 00
Two animals, either sex, the produce of one cow, Fletcher S. Hines	10 00
Second premium, A. C. Wood & Son, Pendleton, Ind	7 00
Third premium, A. C. Wood & Son, Pendleton, Ind	5 00
Exhibitor's herd, Fletcher S. Hines, Malott Park, Ind	20 00
Second premium, A. C. Wood & Son, Pendleton, Ind	10 00
Breeder's herd, J. N. Wood & Son, Gardner, Ill	20 00
Best fat steer two years old and under three, Fletcher S. Hines Malott Park, Ind	15 00
Second premium, Fletcher S. Hines, Malott Park, Ind	10 00

CHAMPIONS.

Best bull, any age, A. C. Wood & Son, Pendleton, Ind	20 00
Best cow or heifer, any age, Fletcher S. Hines, Malott Park, Ind	20 00

AMERICAN ABERDEEN-ANGUS BREEDERS' ASSOCIATION SPECIAL PREMIUMS.

(C. E. Marvin, Judge, Payne's Depot, Ky.)

BULLS.

Three years old or over, C. H. Gardner, Blandsville, Ill	$14 00
Second premium, Wilmer N. Foster, Attica, Ind	9 00
Third premium, Henderson & Sons, Lebanon, Ind	6 00
Two years old and under three, W. A. McHenry, Denison, Iowa	14 00
Second premium, C. H. Gardner, Blandsville, Ill	9 00
Third premium, M. A. Judy, Williamsport, Ind	6 00
One year old and under two, Smith & Chambers, Shelbyville, Ky	14 00
Second premium, C. H. Gardner, Blandsville, Ill	8 00
Third premium, W. A. McHenry, Denison, Iowa	6 00
Fourth premium, David Hadley & Son, Danville, Ind	4 00
Fifth premium, M. A. Judy, Williamsport, Ind	3 00
Sixth premium, Henderson & Sons, Lebanon, Ind	2 00
Under one year, M. A. Judy, Williamsport, Ind	14 00
Second premium, C. H. Gardner, Blandsville, Ill	8 00
Third premium, Wilmer N. Foster, Attica, Ind	6 00
Fourth premium, M. A. Judy, Williamsport, Ind	4 00
Fifth premium, Wilmer N. Foster, Attica, Ind	3 00
Sixth premium, David Hadley & Son, Danville, Ind	2 00

COWS AND HEIFERS.

Three years old or over, C. H. Gardner, Blandsville, Ill	14 00
Second premium, W. A. McHenry, Denison, Iowa	9 00
Third premium, M. A. Judy, Williamsport, Ind	6 00
Fourth premium, Henderson & Sons, Lebanon, Ind	4 00
Fifth premium, Henderson & Sons, Lebanon, Ind	3 00
Two years old and under three, C. H. Gardner, Blandsville, Ill	14 00
Second premium, W. A. McHenry, Denison, Iowa	9 00
Third premium, M. A. Judy, Williamsport, Ind	6 00
Fourth premium, M. A. Judy, Williamsport, Ind	4 00
Fifth premium, Henderson & Son, Lebanon, Ind	3 00
One year old and under two, C. H. Gardner, Blandsville, Ill	14 00
Second premium, W. A. McHenry, Denison, Iowa	8 00
Third premium, M. A. Judy, Williamsport, Ind	6 00
Fourth premium, M. A. Judy, Williamsport, Ind	4 00
Fifth premium, W. A. McHenry, Denison, Iowa	3 00
Sixth premium, C. H. Gardner, Blandsville, Ill	2 00
Heifer under one year old, M. A. Judy, Williamsport, Ind	14 00
Second premium, W. A. McHenry, Denison, Iowa	8 00
Third premium, W. A. McHenry, Denison, Iowa	6 00
Fourth premium, C. H. Gardner, Blandsville, Ill	4 00
Fifth premium, C. H. Gardner, Blandsville, Ill	3 00
Sixth premium, Wilmer N. Foster, Attica, Ind	2 00

CLASS 25. GALLOWAYS.

(C. E. Marvin, Judge, Payne's Depot, Ky.)

BULLS.

Three years old and over, Brookside Farm Co., Ft. Wayne, Ind	$15 00
Two years old and under three, Brookside Farm Co., Ft. Wayne, Ind	10 00
One year old and under two, Brookside Farm Co., Ft. Wayne, Ind	8 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind	6 00
Calf, under one year old, Brookside Farm Co., Ft. Wayne, Ind	5 00

COWS AND HEIFERS.

Two years old and under three, Brookside Farm Co., Ft. Wayne, Ind	10 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind	7 00
One year old and under two, Brookside Farm Co., Ft. Wayne, Ind.	8 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind	6 00
Calf, under one year old, Brookside Farm Co., Ft. Wayne, Ind	5 00

Second premium, Brookside Farm Co., Ft. Wayne, Ind	3 00
Four animals, either sex, the get of one sire, Brookside Farm Co., Ft. Wayne, Ind	10 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind	7 00
Two animals, either sex, the produce of one cow, Brookside Farm Co., Ft. Wayne, Ind	10 00
Exhibitor's herd, Brookside Farm Co., Ft. Wayne, Ind	20 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind	10 00
Breeder's herd, Brookside Farm Co., Ft. Wayne, Ind	20 00
Best bull, any age, Brookside Farm Co., Ft. Wayne, Ind	20 00
Best cow or heifer, any age, Brookside Farm Co., Ft. Wayne, Ind.	20 00

CLASS 26. RED POLLS.

(C. E. Marvin, Judge, Payne's Depot, Ky.)

BULLS.

Three years old and over, Chas. J. Buchanan, Indianapolis, Ind	$10.00
One year old and under two, Chas. J. Buchanan, Indianapolis, Ind.	5 00
Calf, under one year old, Chas. J. Buchanan, Indianapolis, Ind	5 00

COWS AND HEIFERS.

Three years old and over, Chas. J. Buchanan, Indianapolis, Ind	10 00
Second premium, Chas. J. Buchanan, Indianapolis, Ind	5 00
Two years old and under three, Chas. J. Buchanan, Indianapolis, Ind	7 00
One year old and under two, Chas. J. Buchanan, Indianapolis, Ind.	5 00
Calf, under one year old, Chas. J. Buchanan, Indianapolis, Ind	5 00
Two animals, either sex, the produce of one cow, Chas. J. Buchanan, Indianapolis, Ind	8 00
Exhibitor's herd, Chas. J. Buchanan, Indianapolis, Ind	10 00

CHAMPIONS.

Best bull, any age, Chas. J. Buchanan, Indianapolis, Ind	10 00
Best cow or heifer, any age, Chas. J. Buchanan, Indianapolis, Ind.	10 00

CLASS 27. OPEN TO ALL BEEF BREEDS.

(F. A. Nave, C. E. Marvin, C. L. Gerlaugh, Judges.)

GRAND CHAMPIONS.

Best bull, any age or breed, W. S. Van Natta & Son, Fowler, Ind.	$50 00
Best cow or heifer, any age or breed, C. H. Gardner, Blandsville, Ill	50 00
Best steer, any age or breed, M. A. Judy, Williamsport, Ind	50 00
Second premium, H. J. Sconce, Sidell, Ill	25 00

CATTLE. (DAIRY BREEDS.)

CLASS 28. JERSEYS.

(M. A. Scovell, Judge, Lexington, Ky.)

BULLS.

Three years old and over, W. L. Scott, Scotts Station, Ky	$20 00
Second premium, P. A. Pugh & Son, New Cumberland, W. Va	12 00
Third premium, W. L. Scott, Scotts Station, Ky	6 00
Two years old and under three, W. L. Scott, Scotts Station, Ky	15 00
Second premium, P. A. Pugh & Son, New Cumberland, W. Va	7 00
One year old and under two, W. L. Scott, Scotts Station, Ky	10 00
Second premium, P. A. Pugh & Son, New Cumberland, W. Va	7 00
Third premium, C. W. Brubeck, Georgetown, Ind	4 00
Calf, under one year old, W. L. Scott, Scotts Station, Ky	7 00
Second premium, C. W. Brubeck, Georgetown, Ind	5 00
Third premium, P. A. Pugh & Son, New Cumberland, W. Va	3 00

COWS AND HEIFERS.

Three years old and over, C. W. Brubeck, Georgetown, Ind	20 00
Second premium, W. L. Scott, Scotts Station, Ky	12 00
Third premium, W. L. Scott, Scotts Station, Ky	6 00
Two years old and under three, C. W. Brubeck, Georgetown, Ind	15 00
Second premium, M. L. Hessong, Nora, Ind	10 00
Third premium, W. L. Scott, Scotts Station, Ky	5 00
One year old and under two, W. L. Scott, Scotts Station, Ky	10 00
Second premium, W. L. Scott, Scotts Station, Ky	7 00
Third premium, C. W. Brubeck, Georgetown, Ind	4 00
Calf, under one year old, W. L. Scott, Scotts Station, Ky	7 00
Second premium, P. A. Pugh & Son, New Cumberland, W. Va	5 00
Third premium, C. W. Brubeck, Georgetown, Ind	3 00
Four animals, either sex, the get of one sire, W. L. Scott, Scotts Station, Ky	15 00
Second premium, C. W. Brubeck, Georgetown, Ind	10 00
Third premium, P. A. Pugh & Son, New Cumberland, W. Va	6 00
Two animals, either sex, the produce of one cow, C. W. Brubeck, Georgetown, Ind	15 00
Second premium, W. L. Scott, Scotts Station, Ky	10 00
Third premium, W. L. Scott, Scotts Station, Ky	5 00
Exhibitor's herd, W. L. Scott, Scotts Station, Ky	25 00

Second premium, C. W. Brubeck, Georgetown, Ind	15 00
Breeder's herd, W. L. Scott, Scotts Station, Ky	25 00
Second premium, P. A. Pugh & Son, New Cumberland, W. Va	15 00

CHAMPIONS.

Best bull, any age, W. L. Scott, Scotts Station, Ky	25 00
Best cow or heifer, any age, C. W. Brubeck, Georgetown, Ind	25 00

CLASS 29. HOLSTEIN-FRESIAN.

(M. A. Scovell, Judge, Lexington, Ky.)

BULLS.

Three years old and over, T. A. Mitchell, Weedsport, N. Y	$12 00
Two years old and under three, T. A. Mitchell, Weedsport, N. Y	8 00
One year old and under two, T. A. Mitchell, Weedsport, N. Y	6 00
Calf, under one year old, T. A. Mitchell, Weedsport, N. Y	5 00

COWS AND HEIFERS.

Three years old and over, T. A. Mitchell, Weedsport, N. Y	12 00
Second premium, T. A. Mitchell, Weedsport, N. Y	8 00
Two years old and under three, T. A. Mitchell, Weedsport, N. Y	8 00
Second premium, T. A. Mitchell, Weedsport, N. Y	6 00
One year old and under two, T. A. Mitchell, Weedsport, N. Y	6 00
Second premium, T. A. Mitchell, Weedsport, N. Y	3 00
Calf, under one year old, T. A. Mitchell, Weedsport, N. Y	5 00
Second premium, T. A. Mitchell, Weedsport, N. Y	5 00
Third premium, T. A. Mitchell, Weedsport, N. Y	3 00
Four animals, either sex, the get of one sire, T. A. Mitchell, Weedsport, N. Y	8 00
Exhibitor's herd, T. A. Mitchell, Weedsport, N. Y	15 00
Second premium, T. A. Mitchell, Weedsport, N. Y	10 00
Breeder's herd, T. A. Mitchell, Weedsport, N. Y	15 00
Best bull, any age, T. A. Mitchell, Weedsport, N. Y	20 00
Best cow or heifer, any age	20 00

CLASS 30. DUTCH BELTED.

(M. A. Scovell, Judge, Lexington, Ky.)

BULLS.

Three years old and over, J. W. Swab, Findlay, Ohio	$12 00
One year old and under two, J. W. Swab, Findlay, Ohio	6 00

Second premium, A. C. Green & Sons, Winchester, Ind.	3 00
Calf, under one year old, J. W. Swab, Findlay, Ohio	5 00
Second premium, A. C. Green & Sons, Winchester, Ind.	3 00
Third premium, J. W. Swab, Findlay, Ohio	2 00

COWS AND HEIFERS.

Three years old and over, J. W. Swab, Findlay, Ohio	12 00
Second premium, J. W. Swab, Findlay, Ohio	8 00
Third premium, J. W. Swab, Findlay, Ohio	4 00
Two years old and under three, J. W. Swab, Findlay, Ohio	8 00
Second premium, J. W. Swab, Findlay, Ohio	6 00
One year old and under two, J. W. Swab, Findlay, Ohio	6 00
Second premium, J. W. Swab, Findlay, Ohio	3 00
Calf, under one year old, J. W. Swab, Findlay, Ohio	5 00
Second premium, J. W. Swab, Findlay, Ohio	3 00
Third premium, J. W. Swab, Findlay, Ohio	2 00
Four animals, either sex, the get of one sire, J. W. Swab, Findlay, Ohio	8 00
Two animals, either sex, the produce of one cow, J. W. Swab, Findlay, Ohio	8 00
Second premium, J. W. Swab, Findlay, Ohio	6 00
Third premium, J. W. Swab, Findlay, Ohio	3 00
Exhibitor's herd, J. W. Swab, Findlay, Ohio	15 00
Breeder's herd, J. W. Swab, Findlay, Ohio	15 00

CLASS 31. AYRSHIRES.

(M. A. Scovell, Judge, Lexington, Ky.)

BULLS.

Three years old and over, Howard Cook, Beloit, Ohio	$12 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	8 00
Two years old and under three, Howard Cook, Beloit, Ohio	8 00
One year old and under two, Howard Cook, Beloit, Ohio	6 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	3 00
Calf, under one year old, Howard Cook, Beloit, Ohio	5 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	3 00

COWS AND HEIFERS.

Three years old and over, Howard Cook, Beloit, Ohio	12 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	8 00
Third premium, Howard Cook, Beloit, Ohio	4 00
Two years old and under three, Howard Cook, Beloit, Ohio	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	6 00

Third premium, Howard Cook, Beloit, Ohio	3 00
One year old and under two, McCormick & Edgerly, Pataskala, O.	6 00
Second premium, Howard Cook, Beloit, Ohio	3 00
Third premium, McCormick & Edgerly, Pataskala, Ohio	2 00
Calf, under one year old, McCormick & Edgerly, Pataskala, Ohio	5 00
Second premium, Howard Cook, Beloit, Ohio	3 00
Third premium, Howard Cook, Beloit, Ohio	2 00
Four animals, either sex, the get of one sire, Howard Cook, Beloit, Ohio	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	6 00
Two animals, either sex, the produce of one cow, McCormick & Edgerly, Pataskala, Ohio	8 00
Second premium, Howard Cook, Beloit, Ohio	6 00
Exhibitor's herd, Howard Cook, Beloit Ohio	15 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	10 00
Breeder's herd, Howard Cook, Beloit, Ohio	15 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	10 00

CLASS 32. GURNSEYS.

(M. A. Scovell, Judge, Lexington, Ky.)

BULLS.

Three years old and over, L. V. Axtell, Perry, Ohio	$12 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	8 00
Two years old and under three, L. V. Axtell, Perry, Ohio	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	6 00
One year old and under two, L. V. Axtell, Perry, Ohio	6 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	3 00
Calf, under one year old, McCormick & Edgerly, Pataskala, Ohio	5 00
Second premium, L. V. Axtell, Perry, Ohio	3 00
Third premium, L. V. Axtell, Perry, Ohio	2 00

COWS AND HEIFERS.

Three years old and over, McCormick & Edgerly, Pataskala, Ohio	12 00
Second premium, L. V. Axtell, Perry, Ohio	8 00
Third premium, L. V. Axtell, Perry, Ohio	4 00
Two years old and under three, L. V. Axtell, Perry, Ohio	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	6 00
Third premium, L. V. Axtell, Perry, Ohio	3 00
One year old and under two, L. V. Axtell, Perry, Ohio	6 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	3 00
Third premium, L. V. Axtell, Perry, Ohio	2 00
Calf, under one year old, McCormick & Edgerly, Pataskala, Ohio	5 00

Second premium, L. V. Axtell, Perry, Ohio	3 00
Third premium, L. V. Axtell, Perry, Ohio	2 00
Four animals, either sex, the get of one sire, L. V. Axtell, Perry, Ohio	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	6 00
Third premium, L. V. Axtell, Perry, Ohio	3 00
Two animals, either sex, the produce of one cow, L. V. Axtell, Perry, Ohio	8 00
Second premium, L. V. Axtell, Perry, Ohio	6 00
Third premium, McCormick & Edgerly, Pataskala, Ohio	3 00
Exhibitor's herd, L. V. Axtell, Perry, Ohio	15 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	10 00
Breeder's herd, L. V. Axtell, Perry, Ohio	15 00
Second premium, McCormick & Edgerly, Pataskala, Ohio	10 00

CHAMPIONS.

Best bull, any age, L. V. Axtell, Perry, Ohio	20 00
Best cow or heifer, any age, L. V. Axtell, Perry Ohio	20 00

DAIRY AND CREAMERY PRODUCTS.

CLASS 33.

(H. N. Slater, Judge, Lafayette, Ind.)

For 20-pound tub creamery butter, Herbert Newby, Spiceland, Ind.	$20 00
Second premium, Perry L. Johnson, Prairie Creek, Ind	15 00
Third premium, Silas Holloway, North Manchester, Ind	10 00
Fourth premium, Schlosser Bros., Plymouth, Ind	5 00
For 10-pound tub dairy butter, Mrs. Peter Raab, Lawrence, Ind	12 00
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind	8 00
For 5 pounds dairy butter in one pound prints, Mrs. E. T. Drake, Edinburg, Ind.	8 00
Second premium, Frank R. Gregory, Pendleton, Ind	6 00
Third premium, Mrs. Peter Raab, Lawrence, Ind	4 00
Fourth premium, Chas. Lamont, Noblesville, Ind	2 00
For full cream cheese, not less than 30 pounds, Boyd & Drischel, Cambridge City, Ind	15 00
Second premium, A. E. Helmer, Evans Mills, N. Y	12 00
Third premium, W. L. McCain, Dublin, Ind	8 00
For cottage cheese, not less than one print, Jennie H. Droke, Galladet, Ind.	3 00

Second premium, Mrs. W. B. Flick, Lawrence, Ind	2 00
Third premium, Mrs. Jerome Dunlap, Lafayette, Ind	1 00
For the most fancy exhibit of print or ornamental butter work, Jennie H. Droke, Gallaudet, Ind	10 00
For three Young America cheese, Boyd & Drischel, Cambridge City, Ind.	15 00
Second premium, A. E. Helmer, Evans Mills, N. Y.	10 00
Third premium, W. L. McCain, Dublin, Ind	5 00

SHEEP.

CLASS 34. SHROPSHIRE.

(H. Noel Gibson, Judge.)

RAMS.

Two years old or over, G. Howard Davison, Millbrook, N. Y.	$10 00
Second premium, G. Howard Davison, Millbrook, N. Y.	8 00
Third premium, Niagara Stock Farm, Lewiston, N. Y.	5 34
Fourth premium, Henry C. Forgey, Crawfordsville, Ind	4 00
Fifth premium, Niagara Stock Farm, Lewiston, N. Y.	3 33
Sixth premium, Geo. Allen, Allerton, Ill	2 00
One year old and under two, Geo. Allen, Allerton, Ill	10 00
Second premium, G. Howard Davison, Millbrook, N. Y.	8 00
Third premium, G. Howard Davison, Millbrook, N. Y.	5 34
Fourth premium, Niagara Stock Farm, Lewiston, N. Y.	4 00
Fifth premium, Henry C. Forgey, Crawfordsville, Ind	3 33
Sixth premium, Niagara Stock Farm, Lewiston, N. Y.	2 00
Lamb, G. Howard Davison, Millbrook, N. Y.	10 00
Second premium, G. Howard Davison, Millbrook, N. Y.	8 00
Third premium, Geo. Allen, Allerton, Ill	5 34
Fourth premium, G. Howard Davison, Millbrook, N. Y.	4 00
Fifth premium, Niagara Stock Farm, Lewiston, N. Y.	3 33
Sixth premium, Henry Klinger, Lebanon, Ind	2 00

EWES.

One year old and under two, G. Howard Davison, Millbrook, N. Y.	10 00
Second premium, G. Howard Davison, Millbrook, N. Y.	8 00
Third premium, Geo. Allen, Allerton, Ill	5 34
Fourth premium, Niagara Stock Farm, Lewiston, N. Y.	4 00
Fifth premium, Geo. Allen, Allerton, Ill	3 33

Sixth premium, Henry C. Forgey, Crawfordsville, Ind	2 00
Lamb, G. Howard Davison, Millbrook, N. Y	10 00
Second premium, Geo. Allen, Allerton, Ill	8 00
Third premium, Geo. Allen, Allerton, Ill	5 34
Fourth premium, Niagara Stock Farm, Lewiston, N. Y	4 00
Fifth premium, Niagara Stock Farm, Lewiston, N. Y	3 33
Sixth premium, G. Howard Davison, Millbrook, N. Y	2 00

FLOCKS.

Exhibitor's flock, G. Howard Davison, Millbrook, N. Y	10 00
Second premium, Geo. Allen, Allerton, Ill	8 00
Third premium, Niagara Stock Farm, Lewiston, N. Y	5 34
Fourth premium, Henry C. Forgey, Crawfordsville, Ind	4 00
Fifth premium, Claud D. Storm, Lebanon, Ind	3 33
Breeder's flock, G. Howard Davison, Millbrook, N. Y	10 00
Second premium, Niagara Stock Farm, Lewiston, N. Y	8 00
Third premium, Geo. Allen, Allerton, Ill	5 34
Fourth premium, Claud D. Storm, Lebanon, Ind	4 00
Fifth premium, Henry C. Forgey, Crawfordsville, Ind	3 33
Best pen of five rams, any age, G. Howard Davison, Millbrook, N. Y	10 00
Second premium, Niagara Stock Farm, Lewiston, N. Y	8 00
Third premium, Geo. Allen, Allerton, Ill	5 34
Fourth premium, Wm. Furry, Greenfield, Ind	4 00
Fifth premium, Henry Klinger, Lebanon, Ind	3 33
Sixth premium, Wm. Furry, Greenfield, Ind	2 00

CHAMPIONS.

Champion ram, any age, G. Howard Davison, Millbrook, N. Y	13 33
Champion ewe, any age, G. Howard Davison, Millbrook, N. Y	13 33

CLASS 35. OXFORD DOWN.

RAMS.

Two years old or over, R. J. Stone, Stonington, Ill	12 00
Second premium, Geo. McKerrow, Pewaukee, Wis	7 00
Third premium, Geo. McKerrow, Pewaukee, Wis	5 00
Fourth premium, Wilson Bros., Muncie, Ind	3 00
One year old and under two, Geo. McKerrow, Pewaukee, Wis	12 00
Second premium, Geo. McKerrow, Pewaukee, Wis	7 00
Third premium, Geo. McKerrow, Pewaukee, Wis	5 00
Fourth premium, R. J. Stone, Stonington, Ill	3 00
Lamb, R. J. Stone, Stonington, Ill	12 00

Second premium, Geo. McKerrow, Pewaukee, Wis	7 00
Third premium, Geo. McKerrow, Pewaukee, Wis	5 00
Fourth premium, Geo. McKerrow, Pewaukee, Wis	3 00

EWES.

One year old and under two, Geo. McKerrow, Pewaukee, Wis	12 00
Second premium, Geo. McKerrow, Pewaukee, Wis	7 00
Third premium, R. J. Stone, Stonington, Ill	5 00
Fourth premium, Wilson Bros., Muncie, Ind	3 00
Lamb, Geo. McKerrow, Pewaukee, Wis	12 00
Second premium, Geo. McKerrow, Pewaukee, Wis	7 00
Third premium, R. J. Stone, Stonington, Ill	5 00
Fourth premium, Geo. McKerrow, Pewaukee, Wis	3 00

FLOCKS.

Exhibitor's flock, Geo. McKerrow, Pewaukee, Wis	10 00
Second premium, R. J. Stone, Stonington, Ill	6 00
Third premium, Wilson Bros	4 00
Breeder's flock, Geo. McKerrow, Pewaukee, Wis	10 00
Second premium, R. J. Stone, Stonington, Ill	6 00
Third premium, R. J. Stone, Stonington, Ill	4 00
Best pen of five rams, any age, R. J. Stone, Stonington, Ill	10 00

CHAMPIONS.

Champion ram, any age, Geo. McKerrow, Pewaukee, Wis	10 00
Champion ewe, any age, Geo. McKerrow, Pewaukee, Wis	10 00

CLASS 36. SOUTHDOWN.

RAMS.

Two years old or over, Geo. McKerrow, Pewaukee, Wis	12 00
Second premium, Geo. Allen, Allerton, Ill	7 00
Third premium, Geo. Allen, Allerton, Ill	5 00
Fourth premium, Geo. McKerrow, Pewaukee, Wis	3 00
One year old and under two, Geo. McKerrow, Pewaukee, Wis	12 00
Second premium, Geo. Allen, Allerton, Ill	7 00
Third premium, Geo. McKerrow, Pewaukee, Wis	5 00
Fourth premium, Wilson Bros	3 00
Lamb, Geo. McKerrow, Pewaukee, Wis	12 00
Second premium, Wilson Bros., Muncie, Ind	7 00
Third premium, Geo. McKerrow, Pewaukee, Wis	5 00
Fourth premium, Geo. McKerrow, Pewaukee, Wis	3 00

EWES.

One year old and under two, Geo. McKerrow, Pewaukee, Wis	12 00
Second premium, Geo. McKerrow, Pewaukee, Wis	7 00
Third premium, Wilson Bros., Muncie, Ind	6 00
Fourth premium, Geo. Allen, Allerton, Ill	3 00
Lamb, Geo. Allen, Allerton, Ill	12 00
Second premium, Geo. McKerrow, Pewaukee, Wis	7 00
Third premium, Geo. McKerrow, Pewaukee, Wis	5 00
Fourth premium, Geo. McKerrow, Pewaukee, Wis	3 00

FLOCKS.

Exhibitor's flock, Geo. McKerrow, Pewaukee, Wis	10 00
Second premium, Watt Wilson & Son, Muncie, Ind	10 00
Breeder's flock, Geo. McKerrow, Pewaukee, Wis	10 00
Second premium, Watt Wilson & Son, Muncie, Ind	6 00
Pen of five rams, any age, Watt Wilson & Son, Muncie, Ind	10 00

CHAMPIONS.

Champion ram, any age, Geo. McKerrow, Pewaukee, Wis	10 00
Champion ewe, any age, Geo. McKerrow, Pewaukee, Wis	10 00

CLASS 37. HAMPSHIRE DOWN.

RAMS.

Two years old or over, James West, Montpelier, Ind	$8 00
Second premium, James West, Montpelier, Ind	4 00
One year old and under two, James West, Montpelier, Ind	8 00
Second premium, James West, Montpelier, Ind	3 00
Third premium, James West, Montpelier, Ind	2 00
Lamb, James West, Montpelier, Ind	8 00
Second premium, James West, Montpelier, Ind	3 00
Third premium, James West, Montpelier, Ind	2 00

EWES.

One year old and under two, James West, Montpelier, Ind	8 00
Second premium, James West, Montpelier, Ind	3 00
Lamb, James West, Montpelier, Ind	8 00

FLOCKS.

Exhibitor's flock, James West, Montpelier, Ind	6 00
Second premium, James West, Montpelier, Ind	3 00
Breeder's flock, James West, Montpelier, Ind	6 00
Second premium, James West, Montpelier, Ind	3 00
Pen of five rams, any age, James West, Montpelier, Ind	10 00
Second premium, James West, Montpelier, Ind	5 00

CHAMPIONS.

Champion ram, any age, James West, Montpelier, Ind	6 00
Champion ewe, any age, James West, Montpelier, Ind	6 00

CLASS 38. COTSWOLD.

RAMS.

Two years old or over, Wilson Bros., Muncie, Ind	$12 00
Second premium, F. W. Harding, Waukesha, Wis	7 00
Third premium, Wilson Bros., Muncie, Ind	5 00
Fourth premium, Wilson Bros., Muncie, Ind	3 00
One year old and under two, F. W. Harding, Waukesha, Wis	12 00
Second premium, Wilson Bros., Muncie, Ind	7 00
Third premium, Wilson Bros., Muncie, Ind	6 00
Fourth premium, F. W. Harding, Waukesha, Wis	3 00
Lamb, F. W. Harding, Waukesha, Wis	12 00
Second premium, F. W. Harding, Waukesha, Wis	7 00
Third premium, F. W. Harding, Waukesha, Wis	5 00
Fourth premium, Wilson Bros., Muncie, Ind	3 00

EWES.

One year old and under two, F. W. Harding, Waukesha, Wis	12 00
Second premium, F. W. Harding, Waukesha, Wis	7 00
Third premium, Wilson Bros., Muncie, Ind	5 00
Lamb, F. W. Harding, Waukesha, Wis	12 00
Second premium, F. W. Harding, Waukesha, Wis	7 00
Third premium, Wilson Bros., Muncie, Ind	5 00
Fourth premium, Wilson Bros., Muncie, Ind	3 00
Exhibitor's flock, F. W. Harding, Waukesha, Wis	10 00
Second premium, Wilson Bros., Muncie, Ind	6 00

FLOCKS.

Breeder's flock, Wilson Bros., Muncie, Ind	10 00
Pen of five rams, Wilson Bros., Muncie, Ind	10 00

CHAMPIONS.

Champion ram, any age, Wilson Bros., Muncie, Ind	10 00
Champion ewe, any age, F. W. Harding, Waukesha, Wis	10 00

CLASS 40. DORSETS.

RAMS.

Two years old or over, R. Stuyvesant, Allamuchy, N. J	$8 00
Second premium, R. Stuyvesant, Allamuchy, N. J	4 00

One year old and under two, R. Stuyvesant, Allamuchy, N. J	8 00
Second premium, R. Stuyvesant, Allamuchy, N. J	3 00
Lamb, R. Stuyvesant, Allamuchy, N. J	8 00
Second premium, R. Stuyvesant, Allamuchy, N. J	3 00

EWES.

One year old and under two, R. Stuyvesant, Allamuchy, N. J	8 00
Second premium, R. Stuyvesant, Allamuchy, N. J	3 00
Lamb, R. Stuyvesant, Allamuchy, N. J	8 00
Second premium, R. Stuyvesant, Allamuchy, N. J	3 00
Exhibitor's flock, R. Stuyvesant, Allamuchy, N. J	6 00
Second premium, R. Stuyvesant, Allamuchy, N. J	3 00

FLOCKS.

Breeder's flock, R. Stuyvesant Allamuchy, N. J	6 00
Second premium, R. Stuyvesant, Allamuchy, N. J	3 00

CHAMPIONS.

Ram, any age, R. Stuyvesant, Allamuchy, N. J	6 00
Champion ewe, any age, R. Stuyvesant, Allamuchy, N. J	6 00

CLASS 41. RAMBOUILLET.

RAMS.

Two years old or over, F. W. Harding, Waukesha, Wis	$10 00
Second premium, John E. Webb, Southport, Ind	6 00
Third premium, F. W. Harding, Waukesha, Wis	4 00
One year old and under two, F. W. Harding, Waukesha, Wis	10 00
Second premium, F. W. Harding, Waukesha, Wis	6 00
Third premium, John E. Webb, Southport, Ind	4 00
Fourth premium, John E. Webb, Southport, Ind	3 00
Lamb, John E. Webb, Southport, Ind	10 00
Second premium, F. W. Harding, Waukesha, Wis	6 00
Third premium, F. W. Harding, Waukesha, Wis	4 00
Fourth premium, John E. Webb, Southport, Ind	3 00

EWES.

Two years old or over, F. W. Harding, Waukesha, Wis	10 00
Second premium, F. W. Harding, Waukesha, Wis	6 00
Third premium, John E. Webb, Southport, Ind	4 00
Fourth premium, F. W. Harding, Waukesha, Wis	3 00
One year old and under two, F. W. Harding, Waukesha, Wis	10 00
Second premium, John E. Webb, Southport, Ind	6 00

Third premium, F. W. Harding, Waukesha, Wis	4 00
Fourth premium, John E. Webb, Southport, Ind	3 00
Lamb, F. W. Harding, Waukesha, Wis	10 00
Second premium, F. W. Harding, Waukesha, Wis	6 00
Third premium, John E. Webb, Southport, Ind	4 00
Fourth premium, John E. Webb, Southport, Ind	3 00
Exhibitor's flock, F. W. Harding, Waukesha, Wis	10 00
Second premium, John E. Webb, Southport, Ind	6 00
Third premium, F. W. Harding, Waukesha, Wis	4 00

FLOCKS.

Breeder's flock, John E. Webb, Southport, Ind	10 00

CHAMPIONS.

Champion ram, any age, F. W. Harding, Waukesha, Wis	10 00
Champion ewe, any age	10 00

CLASS 42. AMERICAN MERINOS—DELANE TYPE.

RAMS.

Two years old or over, A. T. Gamber, Wakeman, Ohio	$8 00
Second premium, G. E. Helser, Herring, Ohio	5 00
Third premium, R. D. Williamson, Xenia, Ohio	3 00
One year old and under two, A. T. Gamber, Wakeman, Ohio	8 00
Second premium, G. E. Helser, Herring, Ohio	5 00
Third premium, A. T. Gamber, Wakeman, Ohio	3 00
Lamb, G. E. Helser, Herring, Ohio	8 00
Second premium, R. D. Williamson, Xenia, Ohio	5 00
Third premium, A. T. Gamber, Wakeman, Ohio	3 00

EWES.

Two years old or over, G. E. Helser, Herring, Ohio	8 00
Second premium, R. D. Williamson, Xenia, Ohio	5 00
Third premium, G. E. Helser, Herring, Ohio	3 00
One year old and under two, G. E. Helser, Herring, Ohio	8 00
Second premium, A. T. Gamber, Wakeman, Ohio	5 00
Third premium, A. T. Gamber, Wakeman, Ohio	3 00
Lamb, R. D. Williamson, Xenia, Ohio	8 00
Second premium, R. D. Williamson, Xenia, Ohio	5 00
Third premium, A. T. Gamber, Wakeman, Ohio	3 00

FLOCKS.

Exhibitor's flock, G. E. Helser, Herring, Ohio	5 00
Second premium, R. D. Williamson, Xenia, Ohio	3 00

Third premium, A. T. Gamber, Wakeman, Ohio	2 00
Breeder's flock, G. E. Helser, Herring, Ohio	5 00
Second premium, A. T. Gamber, Wakeman, Ohio	3 00

CHAMPIONS.

Champion ram, any age, A. T. Gamber, Wakeman, Ohio	8 00
Champion ewe, any age, G. E. Helser, Herring, Ohio	8 00

CLASS 43. MERINOS.

RAMS.

Two years old or over, R. D. Williamson, Xenia, Ohio	$8 00
Second premium, G. E. Helser, Herring, Ohio	5 00
Third premium, R. D. Williamson, Xenia, Ohio	3 00
One year old and under two, A. T. Gamber, Wakeman, Ohio	8 00
Second premium, G. E. Helser, Herring, Ohio	5 00
Third premium, R. D. Williamson, Xenia, Ohio	3 00
Ram lamb, R. D. Williamson, Xenia, Ohio	8 00
Second premium, R. D. Williamson, Xenia, Ohio	5 00
Third premium, G. E. Helser, Herring, Ohio	3 00

EWES.

Two years old or over, R. D. Williamson, Xenia, Ohio	8 00
Second premium, G. E. Helser, Herring, Ohio	5 00
Third premium, G. E. Helser, Herring, Ohio	3 00
One year old and under two, R. D. Williamson, Xenia, Ohio	8 00
Second premium, R. D. Williamson, Xenia, Ohio	5 00
Third premium, G. E. Helser, Herring, Ohio	3 00
Lamb, R. D. Williamson, Xenia, Ohio	8 00

FLOCKS.

Breeder's flock, F. B. Hartman, Fincastle, Ind	5 00
Second premium, F. B. Hartman, Fincastle, Ind	3 00

CHAMPIONS.

Champion ram, any age, G. W. Parnell, Wingate, Ind	5 00
Champion ewe, any age, F. B. Hartman, Fincastle, Ind	5 00
Second premium, R. D. Williamson, Xenia, Ohio	5 00
Third premium, G. E. Helser, Herring, Ohio	3 00
Exhibitor's flock, R. D. Williamson, Xenia, Ohio	5 00
Second premium, R. D. Williamson, Xenia, Ohio	3 00
Third premium, G. E. Helser, Herring, Ohio	2 00

FLOCKS.

Breeder's flock, R. D. Williamson, Xenia, Ohio	**5 00**
Second premium, G. E. Helser, Herring, Ohio	**3 00**

CHAMPIONS.

Champion ram, any age, R. D. Williamson, Xenia, Ohio	**8 00**
Champion ewe, any age, R. D. Williamson, Xenia, Ohio	**8 00**

CLASS 44. CHEVIOT.

RAMS.

Two years old or over, G. W. Parnell, Wingate, Ind	**$8 00**
Second premium, Hugh F. Collins, Greencastle, Ind	**4 00**
Third premium, Hugh F. Collins, Greencastle, Ind	**2 00**
One year old and under two, F. B. Hartman, Fincastle, Ind	**5 00**
Second premium, G. W. Parnell, Wingate, Ind	**3 00**
Third premium, Hugh F. Collins, Greencastle, Ind	**2 00**
Lamb, F. B. Hartman, Fincastle, Ind	**5 00**
Second premium, Hugh F. Collins, Greencastle, Ind	**3 00**
Third premium, G. W. Parnell, Wingate, Ind	**2 00**

EWES.

Two years old or over, F. B. Hartman, Fincastle, Ind	**8 00**
Second premium, Hugh F. Collins, Greencastle, Ind	**4 00**
Third premium, F. B. Hartman, Fincastle, Ind	**2 00**
One year old and under two, G. W. Parnell, Wingate, Ind	**5 00**
Second premium, F. B. Hartman, Fincastle, Ind	**3 00**
Third premium, F. B. Hartman, Fincastle, Ind	**2 00**
Lamb, F. B. Hartman, Fincastle, Ind	**5 00**
Second premium, G. W. Parnell, Wingate, Ind	**3 00**
Third premium, Hugh F. Collins, Greencastle, Ind	**2 00**

FLOCKS.

Exhibitor's flock, F. B. Hartman, Fincastle, Ind	**5 00**
Second premium, F. B. Hartman, Fincastle, Ind	**3 00**

SWINE.

CLASS 45. BERKSHIRE.

(N. H. Gentry, Judge, Sedalia, Mo.)

BOARS.

Two years old or over, H. F. Waters, Dawson, Ill	$12 00
Second premium, G. Mitchell, Windfall, Ind	8 00
Third premium, J. G. Yeager, Shelbyville, Ky	4 00
One year old and under two, Jas. Riley & Son, Thorntown, Ind	10 00
Second premium, H. F. Waters, Dawson, Ill	7 00
Third premium, G. Mitchell, Windfall, Ind	3 00
Six months old and under twelve, Jas. Riley & Son, Thorntown, Ind.	8 00
Second premium, H. F. Waters, Dawson, Ill	5 00
Third premium, J. G. Yeager, Shelbyville, Ky	2 00
Under six months old, Chas. L. Barker, Thorntown, Ind	8 00
Second premium, Chas. L. Barker, Thorntown, Ind	5 00
Third premium, Chas. L. Barker, Thorntown, Ind	2 00

SOWS.

Two years old or over, J. G. Yeager, Shelbyville, Ky	12 00
Second premium, H. F. Waters, Dawson, Ill	8 00
Third premium, G. Mitchell, Windfall, Ind	4 00
One year old and under two, G. Mitchell, Windfall, Ind	10 00
Second premium, H. F. Waters, Dawson, Ill	7 00
Third premium, Etzler & Moses, Convoy, Ohio	3 00
Six months old and under twelve, H. F. Waters, Dawson, Ill	8 00
Second premium, H. F. Waters, Dawson, Ill	5 00
Third premium, H. F. Waters, Dawson, Ill	2 00
Under six months old, Jas. Riley & Son, Thorntown, Ind	8 00
Second premium, I. N. Barker & Son, Thorntown, Ind	5 00
Third premium, I. N. Barker & Son, Thorntown, Ind	2 00

HERDS.

Boar and three sows over one year, H. F. Waters, Dawson, Ill	20 00
Second premium, G. Mitchell, Windfall, Ind	10 00
Boar and three sows under one year, H. F. Waters, Dawson, Ill	15 00
Second premium, Jas. Riley & Son, Thorntown, Ind	10 00
Five pigs under one year, the get of one boar or produce of one sow, Jas. Riley & Son, Thorntown, Ind	12 00

Second premium, I. N. Barker & Son, Thorntown, Ind.	8 00
Five pigs under six months old, I. N. Barker & Son, Thorntown, Ind.	12 00
Second premium, I. N. Barker & Son, Thorntown, Ind.	8 00
Pair pigs under one year old, Jas. Riley & Son, Thorntown, Ind.	12 00
Second premium, H. F. Waters, Dawson, Ill.	8 00

CHAMPIONS.

Champion boar, any age, Jas. Riley & Son, Thorntown, Ind.	20 00
Champion sow, any age, G. Mitchell, Windfall, Ind.	20 00

CLASS 46. POLAND CHINA.

(Ed. Klever, Judge, Bloomingburg, Ohio.)

BOARS.

Two years old or over, M. B. Graham, Remington, Ind.	$12 00
Second premium, J. C. Greer, Martinsville, Ind.	8 00
Third premium, Lindley & Butler, Russiaville, Ind.	4 00
One year old and under two, S. D. Ghere, New Augusta, Ind.	10 00
Second premium, Lindley & Butler, Russiaville, Ind.	7 00
Third premium, Wm. G. Hartman, Southport, Ind.	3 00
Six months old and under twelve, Castleman & Shipley, Burkett, Ind.	8 00
Second premium, Jack & Son, Judson, Ind.	5 00
Third premium, Jack & Son, Judson, Ind.	2 00
Under six months, Harcourt & Johnson, New Augusta, Ind.	8 00
Second premium, Enos Tolbert, Lagro, Ind.	5 00
Third premium, Lock & Wellington, Remington, Ind.	2 00

SOWS.

Two years old or over, J. R. Harrod, Hope, Ind.	12 00
Second premium, S. D. Ghere, New Augusta, Ind.	8 00
Third premium, Lindley & Butler, Russiaville, Ind.	4 00
One year old and under two, Lock & Wellington, Remington, Ind.	10 00
Second premium, Lock & Wellington, Remington, Ind.	7 00
Third premium, J. W. Williams & Sons, Briant, Ind.	3 00
Six months old and under twelve, J. W. Williams & Son, Briant, Ind.	8 00
Second premium, Smith & Harmon, Rensselaer, Ind.	5 00
Third premium, Lucian Arbuckle, Hope, Ind.	2 00
Under six months, Lucian Arbuckle, Hope, Ind.	8 00

HERDS.

Boar and three sows over one year old, J. W. Williams & Sons, Briant, Ind.	20 00
Second premium, Lindley & Butler, Russiaville, Ind.	10 00
Boar and three sows under one year old, Jack & Son, Judson, Ind.	15 00
Second premium, Enos Tolbert, Lagro, Ind.	10 00
Five pigs under one year, the get of one boar or produce of one sow, Enos Tolbert, Lagro, Ind.	12 00
Second premium, Lock & Wellington, Remington, Ind.	8 00
Five pigs under six months old, Enos Tolbert, Lagro, Ind.	12 00
Second premium, Lock & Wellington, Remington, Ind.	8 00
Pair pigs under one year old, Harcourt & Johnson, New Augusta, Ind.	12 00
Second premium, Enos Tolbert, Lagro, Ind.	8 00

CHAMPIONS.

Champion boar, any age, M. B. Graham, Remington, Ind.	20 00
Champion sow, any age, Lock & Wellington, Remington, Ind.	20 00

CLASS 47. CHESTER WHITE AND CHESHIRE.

(Allen Beeler, Judge, Indianapolis, Ind.)

BOARS.

Two years old or over, Gibson & Reed, Muncie, Ind.	$12 00
Second premium, Elmer Russell, Carmel, Ind.	8 00
Third premium, Gibson & Reed, Muncie, Ind.	4 00
One year old and under two, F. V. & J. J. Hardin, Lima, Ohio	10 00
Second premium, Hinshaw Bros., Zionsville, Ind.	7 00
Third premium, Gibson & Reed, Muncie, Ind.	3 00
Six months old and under twelve, F. V. & J. J. Hardin, Lima, Ohio	8 00
Second premium, Hinshaw Bros., Zionsville, Ind.	5 00
Third premium, W. W. Milner & Son, Thorntown, Ind.	2 00
Under six months, Hinshaw Bros., Zionsville, Ind.	8 00
Second premium, Gibson & Reed, Muncie, Ind.	5 00
Third premium, H. M. Smith, Hall, Ind.	2 00

SOWS.

Two years old or over, F. V. & J. J. Hardin, Lima, Ohio	12 00
Second premium, Gibson & Reed, Muncie, Ind.	8 00
Third premium, F. V. & J. J. Hardin, Lima, Ohio	4 00
One year old and under two, F. V. & J. J. Hardin, Lima, Ohio	10 00
Second premium, F. V. & J. J. Hardin, Lima, Ohio	7 00

Third premium, Gibson & Reed, Muncie, Ind	3 00
Six months old and under twelve, Gibson & Reed, Muncie, Ind	8 00
Second premium, F. V. & J. J. Hardin, Lima, Ohio	5 00
Under six months, H. M. Smith, Hall, Ind	8 00
Second premium, W. W. Milner & Son, Thorntown, Ind	5 00
Third premium, W. W. Milner & Son, Thorntown, Ind	2 00

HERDS.

Boar and three sows over one year, F. V. & J. J. Hardin, Lima, Ohio	20 00
Second premium, Gibson & Reed, Muncie, Ind	10 00
Boar and three sows under one year, F. V. & J. J. Hardin, Lima, Ohio	15 00
Second premium, Hinshaw Bros., Zionsville, Ind	10 00
Five pigs under one year, the get of one boar or produce of one sow, F. V. & J. J. Hardin, Lima, Ohio	12 00
Second premium, H. M. Smith, Hall, Ind	8 00
Five pigs under six months old, H. M. Smith, Hall, Ind	12 00
Second premium, W. W. Milner & Son, Thorntown, Ind	8 00
Pair pigs under one year old, F. V. & J. J. Hardin, Lima, Ohio	12 00
Second premium, H. M. Smith, Hall Ind	8 00

CHAMPIONS.

Champion boar, any age, F. V. & J. J. Hardin, Lima, Ohio	20 00
Champion sow, any age, Gibson & Reed, Muncie, Ind	20 00

CLASS 48. DUROC-JERSEY, TAMWORTH AND THIN RIND.

(W. A. Pearson, Judge, Thorntown, Ind.)

BOARS.

Two years old or over, Watt & Foust, Xenia, Ohio	$12 00
Second premium, W. A. Cravens, Crawfordsville, Ind	8 00
Third premium, Werth & Co., Strasburg, Ind	4 00
Boar one year old and under two, Watt & Foust, Xenia, Ohio	10 00
Second premium, Mahan Bros., Osborn, Ohio	7 00
Third premium, Red Ear Stock Farm, Terre Haute, Ind	3 00
Six months old and under twelve, Mahan Bros., Osborn, Ohio	8 00
Second premium, Watt & Foust, Xenia, Ohio	5 00
Third premium, Marion Stultz, Carmel, Ind	2 00
Under six months old, Watt & Foust, Xenia, Ohio	8 00
Second premium, W. A. Cravens, Crawfordsville, Ind	5 00
Third premium, J. B. Jones, Franklin, Ind	2 00

SOWS.

Two years old or over, Watt & Foust, Xenia, Ohio	12 00
Second premium, W. A. Cravens, Crawfordsville, Ind	8 00
Third premium, Watt & Foust, Xenia, Ohio	4 00
One year old and under two, Mahan Bros., Osborn, Ohio	10 00
Second premium, Mahan Bros., Osborn, Ohio	7 00
Third premium, J. A. Teter, Remington, Ind	3 00
Six months old and under twelve, Watt & Foust, Xenia, Ohio	8 00
Second premium, Mahan Bros., Osborn, Ohio	5 00
Third premium, Watt & Foust, Xenia, Ohio	2 00
Under six months old, Watt & Foust, Xenia, Ohio	8 00
Second premium, Watt & Foust, Xenia, Ohio	8 00
Third premium, W. A. Cravens, Crawfordsville, Ind	5 00

HERDS.

Boar and three sows over one year, Watt & Foust, Xenia, Ohio	20 00
Second premium, Mahan Bros., Osborn, Ohio	10 00
Boar and three sows under one year, Watt & Foust, Xenia, Ohio	15 00
Second premium, Mahan Bros., Osborn, Ohio	10 00
Five pigs under one year, the get of one boar or produce of one sow, Watt & Foust, Xenia, Ohio	12 00
Second premium, W. A. Cravens, Crawfordsville, Ind	8 00
Five pigs under six months old, Watt & Foust, Xenia, Ohio	12 00
Second premium, W. A. Cravens, Crawfordsville, Ind	8 00
Pair pigs under one year old, Watt & Foust, Xenia, Ohio	12 00
Second premium, Mahan Bros., Osborn, Ohio	8 00

CHAMPIONS.

Champion boar, any age, Watt & Foust	20 00
Champion sow, any age, Watt & Foust	20 00

CLASS 49. ESSEX.

(W. A. Pearson, Judge, Thorntown, Ind.)

BOARS.

Two years old or over, Geo. Inechen, Briant, Ind	$5 00
One year old and under two, Geo. Inechen, Briant, Ind	4 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00
Six months old and under twelve, Geo. Inechen, Briant, Ind	3 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00
Under six months, A. C. Green & Sons, Winchester, Ind	3 00
Second premium, Geo. Inechen, Briant, Ind	2 00

SOWS.

Two years old or over, Geo. Inechen, Briant, Ind	5 00
Second premium, Geo. Inechen, Briant, Ind	3 00
One year old and under two, Geo. Inechen, Briant, Ind	4 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00
Six months old and under twelve, Geo. Inechen, Briant, Ind	3 00
Second premium, Geo. Inechen, Briant, Ind	2 00
Under six months old, A. C. Green & Son, Winchester, Ind	3 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00

HERDS.

Boar and three sows over one year, Geo. Inechen, Briant, Ind	5 00
Boar and three sows under one year, Geo. Inechen, Briant, Ind	5 00
Second premium, A. C. Green & Sons, Winchester, Ind	3 00
Five pigs under one year, the get of one boar or produce of one sow, Geo. Inechen, Briant, Ind	4 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00
Five pigs under six months old, A. C. Green & Son, Winchester, Ind.	4 00
Pair pigs under one year old, Geo. Inechen, Briant, Ind	4 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00

CLASS 50. SUFFOLK.

(W. A. Pearson, Judge, Thorntown, Ind.)

SOWS.

Two years old or over, A. C. Green & Sons, Winchester, Ind	$5 00
Six months old and under twelve, A. C. Green & Sons, Winchester, Ind.	3 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00
Under six months old, A. C. Green & Son, Winchester, Ind	3 00
Second premium, A. C. Green & Sons, Winchester, Ind	2 00

HERDS.

Boar and three sows under one year old, A. C. Green & Sons, Winchester, Ind.	5 00
Second premium, A. C. Green & Sons, Winchester, Ind	3 00
Five pigs under one year, the get of one boar or produce of one sow, A. C. Green & Son, Winchester, Ind	4 00
Five pigs under six months old, A. C. Green & Son, Winchester, Ind.	4 00
Pair pigs under one year old, A. C. Green & Son, Winchester, Ind.	4 00
Second premium, A. C. Green & Son, Winchester, Ind	2 00

CLASS 51. VICTORIA, LARGE YORKSHIRE AND SMALL YORKSHIRE.

(W. A. Pearson, Judge, Thorntown, Ind.)

BOARS.

Two years old or over, Geo. Inechen, Briant, Ind	$5 00
One year old and under two, Geo. Inechen, Briant, Ind	4 00
Six months old and under twelve, Geo. Inechen, Briant, Ind	3 00
Second premium, W. E. Rockhill, Etna Green, Ind	2 00
Boar under six months, W. E. Rockhill, Etna Green, Ind	3 00
Second premium, W. E. Rockhill, Etna Green, Ind	2 00

SOWS.

Two years old or over, W. E. Rockhill, Etna Green, Ind	5 00
Second premium, Geo. Inechen, Briant, Ind	3 00
One year old and under two, Geo. Inechen, Briant, Ind	4 00
Second premium, Geo. Inechen, Briant, Ind	2 00
Six months old and under twelve, W. E. Rockhill, Etna Green, Ind.	3 00
Second premium, W. E. Rockhill, Etna Green, Ind	2 00
Under six months, W. E. Rockhill, Etna Green, Ind	3 00
Second premium, W. E. Rockhill, Etna Green, Ind	2 00

HERDS.

Boar and three sows over one year old, Geo. Inechen, Briant, Ind.	5 00
Boar and three sows under one year old, W. E. Rockhill, Etna Green, Ind	5 00
Second premium, Geo. Inechen, Briant, Ind	3 00
Five pigs under one year, the get of one boar or produce of one sow, W. E. Rockhill, Etna Green, Ind	4 00
Second premium, Geo. Inechen, Briant, Ind	2 00
Five pigs under six months old, W. E. Rockhill, Etna Green, Ind.	4 00
Second premium, Geo. Inechen, Briant, Ind	2 00

POULTRY.

CLASS 52.

MEDITERRANEAN.

(T. H. Buck, Wesley Lanius, Theo. Hewes, Ben S. Myers, E. S. Cummings, R. E. Jones, C. A. Snyder, Judges.)

Black Minorca cock, Bertle Doty, Charleston, Ill	$2 00
Second premium, John Stine & Co., Edinburg, Ind	1 00

Third premium, A. M. Acra, Burlington, Ky	ribbon
Black Minorca hen, John Stine & Co., Edinburg, Ind	3 00
Second premium, A. M. Acra, Burlington, Ky	2 00
Third premium, Columbia Poultry Park, Indianapolis, Ind	1 00
Black Minorca cockerel, T. N. Smiley, Milligan, Ind	2 00
Second premium, T. N. Smiley, Milligan, Ind	1 00
Third premium, T. N. Smiley, Milligan, Ind	
Black Minorca pullet, T. N. Smiley, Milligan, Ind	2 00
Second premium, S. T. Campbell, Mansfield, Ohio	1 00
Third premium, Bertle Doty, Charleston, Ill	
Black Minorca pen, John Stine & Co., Edinburg, Ind	3 00
Second premium, T. N. Smiley, Milligan, Ind	2 00
Third premium, Bertle Doty, Charleston, Ill	
White Minorca cock, Jas. E. Harlow, Atlanta, Ind	3 00
Second premium, Columbia Poultry Park, Indianapolis, Ind	2 00
Third premium, Columbia Poultry Park, Indianapolis, Ind	1 00
White Minorca hen, Jas. E. Harlow, Atlanta, Ind	3 00
Second premium, Jas. E. Harlow, Atlanta, Ind	2 00
Third premium, Columbia Poultry Park, Indianapolis, Ind	1 00
White Minorca cockerel, Jas. E. Harlow, Atlanta, Ind	1 00
Second premium, Jas. E. Harlow, Atlanta, Ind	50
Third premium, J. H. Evan, Greenfield, Ind	
White Minorca pullet, Jas. E. Harlow, Atlanta, Ind	3 00
Second premium, Jas. E. Harlow, Atlanta, Ind	2 00
Third premium, J. H. Evan, Greenfield, Ind	1 00
White Minorca pen, Jas. E. Harlow, Atlanta, Ind	5 00
Second premium, Columbia Poultry Park, Indianapolis, Ind	3 00
Third premium, J. H. Evan, Greenfield, Ind	2 00
Blue Andalusian cock, John Stine & Co., Edinburg, Ind	ribbon
Blue Andalusian hen, Bertle Doty, Charleston, Ill	1 00
Second premium, John Stine & Co., Edinburg, Ind	50
Third premium, John Stine & Co., Edinburg, Ind	
Blue Andalusian cockerel, John Stine & Co., Edinburg, Ind	50
Second premium, Bertle Doty, Charleston, Ill	
Blue Andalusian pullet, John Stine & Co., Edinburg, Ind	1 00
Second premium, John Stine & Co., Edinburg, Ind	50
Third premium, Bertle Doty, Charleston, Ill	
Blue Andalusian pen, John Stine & Co., Edinburg, Ind	ribbon
Black Spanish cock, J. S. Smiley & Son, Milligan, Ind	2 00
Second premium, John Stine & Co., Edinburg, Ind	1 00
Third premium, Bertle Doty, Charleston, Ill	
Black Spanish hen, J. S. Smiley & Son, Milligan, Ind	3 00
Second premium, J. S. Smiley & Son, Milligan, Ind	2 00
Third premium, J. A. Hornung & Sons, Shelbyville, Ind	1 00
Black Spanish cockerel, J. A. Hornung & Sons, Shelbyville, Ind	2 00

Second premium, J. H. Evan, Greenfield, Ind	1 00
Third premium, J. A. Hornung, Shelbyville, Ind	
Black Spanish pullet, J. A. Hornung & Sons, Shelbyville, Ind	2 00
Second premium, J. A. Hornung & Sons, Shelbyville, Ind	1 00
Third premium, Bertle Doty, Charleston, Ill	
Black Spanish pen, J. A. Hornung, Shelbyville, Ind	5 00
Second premium, J. S. Smiley & Son, Milligan, Ind	3 00
Third premium, John Stine & Co., Edinburg, Ind	2 00

POLISH.

White-crested black cock, Chas. McClave, West London, Ohio	2 00
Second premium, Louis Seidensticker & Son, Brightwood, Ind	1 00
Third premium, T. N. Smiley, Milligan, Ind	
White-crested black hen, J. A. Hornung & Sons, Shelbyville, Ind	3 00
Second premium, J. A. Hornung & Sons, Shelbyville, Ind	2 00
Third premium, Chas. McClave, West London, Ohio	1 00
White-crested black cockerel, J. A. Hornung & Sons, Shelbyville, Ind	2 00
Second premium, A. M. Acra, Burlington, Ky	1 00
Third premium, A. M. Acra, Burlington, Ky	
White-crested black pullet, J. A. Hornung & Sons, Shelbyville, Ind.	3 00
Second premium, A. M. Acra, Burlington, Ky	2 00
Third premium, A. M. Acra, Burlington, Ky	1 00
White-crested black pen, J. A. Hornung & Sons, Shelbyville, Ind	3 00
Second premium, A. M. Acra, Burlington, Ky	2 00
Third premium, T. N. Smiley, Milligan, Ind	
Silver-bearded cock, Bertle Doty, Charleston, Ill	1 00
Second premium, Bertle Doty, Charleston, Ill	50
Third premium, John Stine & Co., Edinburg, Ind	
Silver-bearded hen, Bertle Doty, Charleston, Ill	2 00
Second premium, John Stine & Co., Edinburg, Ind	1 00
Third premium, Bertle Doty, Charleston, Ill	
Silver-bearded pen, John Stine & Co., Edinburg, Ind	

HAMBURGS.

Silver-spangled cock, M. H. Phares, Shelbyville, Ind	3 00
Second premium, M. H. Phares, Shelbyville, Ind	2 00
Third premium, Bertle Doty, Charleston, Ill	1 00
Silver-spangled hen, Brainard Aikens, Indianapolis, Ind	3 00
Second premium, Brainard Aikens, Indianapolis, Ind	2 00
Third premium, M. H. Phares, Shelbyville, Ind	1 00
Silver-spangled cockerel, M. H. Phares, Shelbyville, Ind	3 00
Second premium, M. H. Phares, Shelbyville, Ind	2 00
Third premium, T. N. Smiley, Milligan, Ind	1 00

Silver-spangled pullet, M. H. Phares, Shelbyville, Ind	3 00
Second premium, M. H. Phares, Shelbyville, Ind	2 00
Third premium, T. N. Smiley, Milligan, Ind	1 00
Silver-spangled pen, M. H. Phares, Shelbyville, Ind	5 00
Second premium, Brainard Aikens, Indianapolis, Ind	3 00
Third premium, T. N. Smiley, Milligan, Ind	2 00

HOUDANS.

Houdan cock, Robert L. Higert, Greencastle, Ind	2 00
Second premium, Robert L. Higert, Greencastle, Ind	1 00
Third premium, J. A. Horunug & Sons, Shelbyville, Ind	
Houdan hen, J. A. Hornung & Sons, Shelbyville, Ind	3 00
Second premium, Robert L. Higert, Greencastle, Ind	2 00
Third premium, Bertle Doty, Charleston, Ill	1 00
Houdan cockerel, Robert L. Higert, Greencastle, Ind	2 00
Second premium, Robert L. Higert, Greencastle, Ind	1 00
Third premium, Robert L. Higert, Greencastle, Ind	
Houdan pullet, Robert L. Higert, Greencastle, Ind	2 00
Second premium, Robert L. Higert, Greencastle, Ind	1 00
Third premium, Robert L. Higert, Greencastle, Ind	
Houdan pen, Robert L. Higert, Greencastle, Ind	5 00
Second premium, Robert L. Higert, Greencastle, Ind	3 00
Third premium, T. N. Smiley, Milligan, Ind	2 00

DORKINGS.

Silver Gray cock, T. M. Campbell, Darlington, Ind	1 00
Second premium, T. M. Campbell, Darlington, Ind	50
Third premium, T. M. Campbell, Darlington, Ind	
Silver Gray hen, T. M. Campbell, Darlington, Ind	2 00
Second premium, T. M. Campbell, Darlington, Ind	1 00
Third premium, T. M. Campbell, Darlington, Ind	
Silver Gray cockerel, T. M. Campbell, Darlington, Ind	1 00
Second premium, T. M. Campbell, Darlington, Ind	50
Silver Gray pullet, T. M. Campbell, Darlington, Ind	1 00
Second premium, T. M. Campbell, Darlington, Ind	50
Silver Gray pen, T. M. Campbell, Darlington, Ind	1 00
Second premium, T. M. Campbell, Darlington, Ind	
Colored hen, Bertle Doty, Charleston, Ill	

ASIATIC.

Buff Cochin cock, Thos. Curry, Anderson, Ind	2 00
Second premium, Warbritton Bros., Ladoga, Ind	1 00
Third premium, C. A. Johnson, Greenfield, Ind	
Buff Cochin hen, Thos. Curry, Anderson, Ind	3 00

Second premium, Warbritton Bros., Ladoga, Ind	2 00
Third premium, Lee Potts, Thorntown, Ind	1 00
Buff Cochin cockerel, Warbritton Bros., Ladoga, Ind	3 00
Second premium, Thos. Curry, Anderson, Ind	2 00
Third premium, C. A. Johnson, Greenfield, Ind	1 00
Buff Cochin pullet, Thos. Curry, Anderson, Ind	3 00
Second premium, Warbritton Bros., Ladoga, Ind	2 00
Third premium, C. A. Johnson, Greenfield, Ind	1 00
Buff Cochin pen, Thos. Curry, Anderson, Ind	5 00
Second premium, Warbritton Bros., Ladoga, Ind	3 00
Third premium, C. A. Johnson, Greenfield, Ind	2 00
Partridge Cochin cock, Chas. McClave, West London, Ohio	2 00
Second premium, Warbritton Bros., Ladoga, Ind	1 00
Third premium, Bertle Doty, Charleston, Ill	
Partridge Cochin hen, Warbritton Bros., Ladoga, Ind	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, Warbritton Bros., Ladoga, Ind	1 00
Partridge Cochin cockerel, Warbritton Bros., Ladoga, Ind	1 00
Second premium, J. S. Smiley & Son, Milligan, Ind	50
Third premium, J. S. Smiley & Son, Milligan, Ind	
Partridge Cochin pullet, Bertle Doty, Charleston, Ill	2 00
Second premium, Warbritton Bros., Ladoga, Ind	1 00
Third premium, Warbritton Bros., Ladoga, Ind	
Partridge Cochin pen, Warbritton Bros, Ladoga, Ind	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, Columbia Poultry Park, Indianapolis, Ind	
White Cochin cock, Bertle Doty, Charleston, Ill	2 00
Second premium, T. N. Smiley, Milligan, Ind	1 00
Third premium, Warbritton Bros., Ladoga, Ind	
White Cochin hen, M. H. Phares, Shelbyville, Ind	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, Warbritton Bros., Ladoga, Ind	1 00
White Cochin cockerel, Warbritton Bros., Ladoga, Ind	1 00
Second premium, Blackman & Toben, Ferguson, Mo	50
Third premium, M. H. Phares, Shelbyville, Ind	
White Cochin pullet, Bertle Doty, Charleston, Ill	2 00
Second premium, Warbritton Bros., Ladoga, Ind	1 00
Third premium, Warbritton Bros., Ladoga, Ind	
White Cochin pen, M. H. Phares, Shelbyville, Ind	5 00
Second premium, Warbritton Bros., Ladoga, Ind	3 00
Third premium, T. N. Smiley, Milligan, Ind	2 00
Black Cochin cock, L. H. Seidensticker & Son, Brightwood, Ind	2 00
Second premium, Blackman & Toben, Ferguson, Mo	1 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind	
Black Cochin hen, Blackman & Toben, Ferguson, Mo	3 00

Second premium, Blackman & Toben, Ferguson, Mo	2 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind	1 00
Black Cochin cockerel, Blackman & Toben, Ferguson, Mo	3 00
Second premium, Chas. McClave, West London, Ohio	2 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind	1 00
Black Cochin pullet, Warbritton Bros., Ladoga, Ind	3 00
Second premium, L. H. Seidensticker & Son, Brightwood, Ind	2 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind	1 00
Black Cochin pen, Blackman & Toben, Ferguson, Mo	5 00
Second premium, L. H. Seidensticker & Son, Brightwood, Ind	3 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind	2 00
Black Langshan cock, T. N. Smiley, Milligan, Ind	3 00
Second premium, T. N. Smiley, Milligan, Ind	2 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
Black Langshan hen, T. N. Smiley, Milligan, Ind	3 00
Second premium, T. N. Smiley, Milligan, Ind	2 00
Third premium, T. N. Smiley, Milligan, Ind	1 00
Black Langshan cockerel, Chas. Wolford, Milton, Ind	3 00
Second premium, Chas. Wolford, Milton, Ind	2 00
Third premium, Chas. Wolford, Milton, Ind	1 00
Black Langshan pullet, E. M. Quay, Columbia City, Ind	3 00
Second premium, Chas. Wolford, Milton, Ind	2 00
Third premium, T. N. Smiley, Milligan, Ind	1 00
Black Langshan pen, T. N. Smiley, Milligan, Ind	5 00
Second premium, Chas. Wolford, Milton, Ind	3 00
Third premium, T. N. Smiley, Milligan, Ind	2 00
White Langshan cock, T. N. Smiley, Milligan, Ind	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00
Third premium, T. M. Campbell, Darlington, Ind	1 00
White Langshan hen, T. N. Smiley, Milligan, Ind	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00
Third premium, Columbia Poultry Park, Indianapolis, Ind	1 00
White Langshan cockerel, T. M. Campbell, Darlington, Ind	3 00
Second premium, T. N. Smiley, Milligan, Ind	2 00
Third premium, Columbia Poultry Park, Indianapolis, Ind	1 00
White Langshan pullet, T. M. Campbell, Darlington, Ind	3 00
Second premium, Columbia Poultry Park, Indianapolis, Ind	2 00
Third premium, Columbia Poultry Park, Indianaolis, Ind	1 00
White Langshan pen, T. M. Campbell, Darlington, Ind	5 00
Second premium, T. N. Smiley, Milligan, Ind	3 00
Third premium, Columbia Poultry Park, Indianapolis, Ind	2 00

MEDITERRANEAN.

Single-comb Brown Leghorn cock, Bertle Doty, Charleston, Ill	3 00
Second premium, Chas. McClave, West London, Ohio	2 00

Third premium, Good & Paxton, Louisville, Ky	1 00
Single-comb Brown Leghorn hen, Chas. McClave, West London, O.	3 00
Second premium, M. H. Phares, Shelbyville, Ind	2 00
Third premium, M. H. Phares, Shelbyville, Ind	1 00
Single-comb Brown Leghorn cockerel, Chas. McClave, West London, Ohio	3 00
Second premium, Ed B. Murphy, Carmel, Ind	2 00
Third premium, Good & Paxton, Louisville, Ky	1 00
Single-comb Brown Leghorn pullet, Ed B. Murphy, Carmel, Ind	3 00
Second premium, Chas. McClave, West London, Ohio	2 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind	3 00
Single-comb Brown Leghorn pen, Chas. McClave, West London, O.	5 00
Second premium, Ed B. Murphy, Carmel, Ind	3 00
Third premium, M. H. Phares, Shelbyville, Ind	2 00
Rose-comb Brown Leghorn cock, T. N. Smiley, Milligan, Ind	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, Chas. McClave, West London, Ohio	1 00
Rose-comb Brown Leghorn hen, T. N. Smiley, Milligan, Ind	3 00
Second premium, T. N. Smiley, Milligan, Ind	2 00
Third premium, T. N. Smiley, Milligan, Ind	1 00
Rose-comb Brown Leghorn cockerel, T. N. Smiley, Milligan, Ind	3 00
Second premium, Chas. McClave, West London, Ohio	2 00
Third premium, Bertle Doty, Charleston, Ill	1 00
Rose-comb Brown Leghorn pullet, J. A. Hornung & Son, Shelbyville, Ind	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, T. N. Smiley, Milligan, Ind	1 00
Rose-comb Brown Leghorn pen, T. N. Smiley, Milligan, Ind	5 00
Second premium, T. N. Smiley, Milligan, Ind	3 00
Third premium, Bertle Doty, Charleston, Ill	2 00
Single-comb White Leghorn cock, Wm. Tobin, Indianapolis, Ind	3 00
Second premium, Wm. Tobin, Indianapolis, Ind	2 00
Third premium, Chas. McClave, West London, Ohio	1 00
Single-comb White Leghorn hen, Chas. McClave, West London, O.	3 00
Second premium, Wm. Tobin, Indianapolis, Ind	2 00
Third premium, Chas. McClave, West London, Ohio	1 00
Single-comb White Leghorn cockerel, B. F. Hill, Indianapolis, Ind	3 00
Second premium, Wm. Tobin, Indianapolis, Ind	2 00
Third premium, Fred Gresh, Carmel, Ind	1 00
Single-comb White Leghorn pullet, Wm. Tobin, Indianapolis, Ind	3 00
Second premium, B. F. Hill, Indianapolis, Ind	2 00
Third premium, Wm. Tobin, Indianapolis, Ind	1 00
Single-comb White Leghorn pen, Wm. Tobin, Indianapolis, Ind	5 00
Second premium, B. F. Hill, Indianapolis, Ind	3 00
Third premium, Wm. Tobin, Indianapolis, Ind	2 00

Rose-comb White Leghorn cock, M. H. Phares, Shelbyville, Ind.	3 00
Second premium, Chas. McClave, West London, Ohio	2 00
Third premium, T. N. Smiley, Milligan, Ind.	1 00
Rose-comb White Leghorn hen, Chas. McClave, West London, Ohio.	3 00
Second premium, T. N. Smiley, Milligan, Ind.	2 00
Third premium, M. H. Phares, Shelbyville, Ind.	1 00
Rose-comb White Leghorn cockerel, Chas. McClave, West London, Ohio	3 00
Second premium, M. H. Phares, Shelbyville, Ind.	2 00
Third premium, T. N. Smiley, Milligan, Ind.	1 00
Rose-comb White Leghorn pullet, Bertie Doty, Charleston, Ill.	3 00
Second premium, John Stine & Co., Edinburg, Ind.	2 00
Third premium, Chas. McClave, West London, Ohio	1 00
Rose-comb White Leghorn pen, Chas. McClave, West London, O.	5 00
Second premium, M. H. Phares, Shelbyville, Ind.	3 00
Third premium, T. N. Smiley, Milligan, Ind.	3 00
Single-comb Buff Leghorn cock, J. B. Middleton, Franklin, Ind.	2 00
Second premium, L. H. Seidensticker & Son, Brightwood, Ind.	1 00
Third premium, T. N. Smiley, Milligan, Ind.	
Single-comb Buff Leghorn hen, J. B. Middleton, Franklin, Ind.	3 00
Second premium, J. B. Middleton, Franklin, Ind.	2 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind.	1 00
Single-comb Buff Leghorn cockerel, Bertie Doty, Charleston, Ill.	3 00
Second premium, Henry C. Forgey, Crawfordsville, Ind.	2 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind.	1 00
Single-comb Buff Leghorn pullet, J. A. Hornung & Sons, Shelbyville, Ind	3 00
Second premium, J. A. Hornung & Sons, Shelbyville, Ind.	2 00
Third premium, J. B. Middleton, Franklin, Ind.	1 00
Single-comb Buff Leghorn pen, J. B. Middleton, Franklin, Ind.	5 00
Second premium, L. H. Seidensticker & Son, Brightwood, Ind.	3 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind.	1 00

AMERICAN.

Barred Plymouth Rock cock, C. E. Spaugh, Rugby, Ind.	3 00
Second premium, C. E. Spaugh, Rugby, Ind.	2 00
Third premium, Mrs. Tilla Leach, Cheneyville, Ill.	1 00
Barred Plymouth Rock hen, Ed B. Murphy, Carmel, Ind.	3 00
Second premium, J. A. Hornung & Son, Shelbyville, Ind.	2 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind.	1 00
Barred Plymouth Rock cockerel, C. E. Spaugh, Rugby, Ind.	3 00
Second premium, Chas. McClave, West London, O.	2 00
Third premium, Ed B. Murphy, Carmel, Ind.	1 00
Barred Plymouth Rock pullet, Chas. McClave, West London, Ohio.	3 00
Second premium, C. E. Spaugh, Rugby, Ind.	2 00

Third premium, Chas. McClave, West London, Ohio	1 00
Barred Plymouth Rock pen, C. E. Spaugh, Rugby, Ind	5 00
Second premium, Chas. McClave, West London, Ohio	3 00
Third premium, Ed B. Murphy, Carmel, Ind	2 00
White Plymouth Rock cock, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Third premium, U. R. Fishel, Hope, Ind	1 00
White Plymouth Rock hen, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Third premium, U. R. Fishel, Hope, Ind	1 00
White Plymouth Rock cockerel, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Third premium, U. R. Fishel, Hope, Ind	1 00
White Plymouth Rock pullet, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Third premium, Chas. Wolford, Milton, Ind	1 00
White Plymouth Rock pen, U. R. Fishel, Hope, Ind	5 00
Second Premium, U. R. Fishel, Hope, Ind	3 00
Third premium, U. R. Fishel, Hope, Ind	2 00
Buff Plymouth Rock cock, Reed & McKindley, McDonald, Pa	3 00
Second premium, E. C. Allison, Hope, Ind	2 00
Third premium, Wm. R. Paetzel, Hope, Ind	1 00
Buff Plymouth Rock hen, Wm. R. Paetzel, Hope, Ind	3 00
Second premium, E. C. Allison, Hope, Ind	2 00
Third premium, R. D. Bratton, New Ross, Ind	1 00
Buff Plymouth Rock cockerel, E. C. Allison, Hope, Ind	3 00
Second premium, E. C. Allison, Hope, Ind	2 00
Third premium, E. C. Allison, Hope, Ind	1 00
Buff Plymouth Rock pullet, E. C. Allison, Hope, Ind	3 00
Second premium, R. L. Bratton, New Ross, Ind	2 00
Third premium, R. L. Bratton, New Ross, Ind	1 00
Buff Plymouth Rock pen, E. C. Allison, Hope, Ind	5 00
Second premium, R. L. Bratton, New Ross, Ind	3 00
Third premium, Wm. R. Paetzel, Hope, Ind	1 00
Silver Wyandotte cock, W. C. Brookover, Carlwick, Ohio	3 00
Second premium, R. E. Jones, Edinburg, Ind	2 00
Third premium, John Stine & Co., Edinburg, Ind	1 00
Silver Wyandotte hen, T. E. Orr, Beaver, Pa	3 00
Second premium, T. E. Orr, Beaver, Pa	2 00
Third premium, W. C. Brookover, Carlwick, Ohio	1 00
Silver Wyandotte cockerel, John Stine & Co., Edinburg, Ind	3 00
Second premium, R. E. Jones, Edinburg, Ind	2 00
Third premium, Henry Steinmerch, St. Louis, Mo	1 00
Silver Wyandotte pullet, H. G. Fish, Vigil, Ohio	3 00
Second premium, Henry Steinmerch, St. Louis, Mo	2 00

Third premium, H. G. Fish, Vigil, Ohio	1 00
Silver Wyandotte pen, T. E. Orr, Beaver, Pa	5 00
Second premium, John Stine & Co., Edinburg, Ind	3 00
Third premium, W. C. Brookover, Carlwick, Ohio	2 00
Golden Wyandotte cock, Chas. McClave, West London, Ohio	3 00
Second premium, H. A. Danner, Franklin, Ind	2 00
Third premium, R. E. Jones, Edinburg, Ind	1 00
Golden Wyandotte hen, R. E. Jones, Edinburg, Ind	3 00
Second premium, Chas. McClave, West London, Ohio	2 00
Third premium, Chas. McClave, West London, Ohio	1 00
Golden Wyandotte cockerel, Chas. McClave, West London, Ohio	3 00
Second premium, R. E. Jones, Edinburg, Ind	2 00
Third premium, H. A. Danner, Franklin, Ind	1 00
Golden Wyandotte pullet, Bertie Doty, Charleston, Ill	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, R. E. Jones, Edinburg, Ind	1 00
Golden Wyandotte pen, Chas. McClave, West London, Ohio	5 00
Second premium, R. E. Jones, Edinburg, Ind	3 00
Third premium, Bertle Doty, Charleston, Ill	2 00
White Wyandotte cock, J. C. Fishel & Son, Hope, Ind	3 00
Second premium, Armstrong Bros., Moral, Ind	2 00
Third premium, Armstrong Bros., Moral, Ind	1 00
White Wyandotte hen, Armstrong Bros., Moral, Ind	3 00
Second premium, T. E. Orr, Beaver, Pa	2 00
Third premium, T. E. Orr, Beaver, Pa	1 00
White Wyandotte cockerel, J. C. Fishel & Son, Hope, Ind	3 00
Second premium, Clement & Fike, Prairie View, Ill	2 00
Third premium, J. C. Fishel & Son, Hope, Ind	1 00
White Wyandotte pullet, J. C. Fishel & Son, Hope, Ind	3 00
Second premium, J. C. Fishel & Son, Hope, Ind	2 00
Third premium, J. C. Fishel & Son, Hope, Ind	1 00
White Wyandotte pen, J. C. Fishel & Son, Hope, Ind	5 00
Second premium, Armstrong Bros., Moral, Ind	3 00
Third premium, T. E. Orr, Beaver, Pa	2 00
Buff Wyandotte cock, Chas. J. Buchanan, Indianapolis, Ind	3 00
Second premium, J. A. Hornung & Son, Shelbyville, Ind	2 00
Third premium, Bertle Doty, Charleston, Ill	1 00
Buff Wyandotte hen, S. B. Lane, Spiceland, Ind	3 00
Second premium, S. B. Lane, Spiceland, Ind	2 00
Third premium, S. B. Lane, Spiceland, Ind	1 00
Buff Wyandotte cockerel, Wm. Rossman, Columbia City, Ind	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, S. B. Lane, Spiceland, Ind	1 00
Buff Wyandotte pullet, Wm. Rossman, Columbia City, Ind	3 00
Second premium, Wm. Rossman, Columbia City, Ind	2 00

Third premium, Wm. Rossman, Columbia City, Ind	1 00
Buff Wyandotte pen, S. B. Lane, Spiceland, Ind	5 00
Second premium, Wm. Rossman, Columbia City, Ind	3 00
Third premium, S. B. Lane, Spiceland, Ind	2 00
Silver-penciled Wyandotte cock, Carver & Avery, Columbia, City, Ind.	1 00
Second premium, Carver & Avery, Columbia City, Ind	50
Third premium, Carver & Avery, Columbia City, Ind	
Silver-penciled hen, Carver & Avery, Columbia City, Ind	50
Second premium, Carver & Avery, Columbia City, Ind	
Third premium, Carver & Avery, Columbia City, Ind	
Silver-penciled Wyandotte cockerel, Carver & Avery, Columbia City, Ind.	1 00
Second premium, Carver & Avery, Columbia City, Ind	50
Third premium, Carver & Avery, Columbia City, Ind	
Silver-penciled pullet, Carver & Avery, Columbia City, Ind	3 00
Second premium, Carver & Avery, Columbia City, Ind	2 00
Third premium, Carver & Avery, Columbia City, Ind	1 00
Silver-penciled Wyandotte pen, Carver & Avery, Columbia City, Ind.	1 00
Second premium, Carver & Avery, Columbia City, Ind	
Partridge Wyandotte cock, Carver & Avery, Columbia City, Ind	2 00
Second premium, Carver & Avery, Columbia City, Ind	1 00
Third premium, Carver & Avery, Columbia City, Ind	
Partridge Wyandotte hen, Carver & Avery, Columbia City, Ind	3 00
Second premium, Carver & Avery, Columbia City, Ind	2 00
Third premium, R. E. Jones, Edinburg, Ind	1 00
Partridge Wyandotte cockerel, Carver & Avery, Columbia City, Ind.	3 00
Second premium, Carver & Avery, Columbia City, Ind	2 00
Third premium, Carver & Avery, Columbia City, Ind	1 00
Partridge Wyandotte pullet, Carver & Avery, Columbia City, Ind	3 00
Second premium, Carver & Avery, Columbia City, Ind	2 00
Third premium, Carver & Avery, Columbia City, Ind	1 00
Partridge Wyandotte pen, Carver & Avery, Columbia City, Ind	5 00
Second premium, Carver & Avery, Columbia City, Ind	3 00
Third premium, R. E. Jones, Edinburg, Ind	2 00
Buff Orpington cock, John Stine & Co., Edinburg, Ind	2 00
Second premium, Carver & Avery, Columbia City, Ind	1 00
Third premium, John Stine & Co., Edinburg, Ind	
Buff Orpington hen, C. S. Byers, Hazelrigg, Ind	3 00
Second premium, C. S. Byers, Hazelrigg, Ind	2 00
Third premium, T. E. Orr, Beaver, Pa	1 00
Buff Orpington cockerel, T. E. Orr, Beaver, Pa	50
Second premium, T. E. Orr, Beaver, Pa	
Third premium, T. E. Orr, Beaver, Pa	

Buff Orpington pullet, T. E. Orr, Beaver, Pa	2 00
Second premium, T. E. Orr, Beaver, Pa	1 00
Third premium, T. E. Orr, Beaver, Pa	
Buff Orpington pen, T. E. Orr, Beaver, Pa	5 00
Second premium, C. S. Byers, Hazelrigg, Ind	3 00
Third premium, John Stine & Co., Edinburg, Ind	2 00
White Orpington pullet, Huddleston Poultry Farm, Winamac, Ind.	50
Second premium, Huddleston Poultry Farm, Winamac, Ind	
Rhode Island Red cock, J. C. Zimmer & Son, Ft. Wayne, Ind	2 00
Second premium, J. C. Zimmer & Son, Ft. Wayne, Ind	1 00
Third premium, J. C. Zimmer & Son, Ft. Wayne, Ind	
Rhode Island Red hen, J. C. Zimmer & Son, Ft. Wayne, Ind	2 00
Second premium, J. C. Zimmer & Son, Ft. Wayne, Ind	1 00
Third premium, J. C. Zimmer & Son, Ft. Wayne, Ind	
Rhode Island Red cockerel, J. C. Zimmer & Son, Ft. Wayne, Ind	2 00
Second premium, J. C. Zimmer & Son, Ft. Wayne, Ind	1 00
Third premium, J. C. Zimmer & Son, Ft. Wayne, Ind	
Rhode Island Red pullet, J. C. Zimmer & Son, Ft. Wayne, Ind	3 00
Second premium, J. C. Zimmer & Son, Ft. Wayne, Ind	2 00
Third premium, J. C. Zimmer & Son, Ft. Wayne, Ind	1 00
Rhode Island Red pen, J. C. Zimmer & Son, Ft. Wayne, Ind	3 00
Second premium, J. C. Zimmer & Son, Ft. Wayne, Ind	2 00
Third premium, J. C. Zimmer & Son, Ft. Wayne, Ind	

ASIATIC.

Light Brahma cock, Frank P. Johnson, Howlands, Ind	3 00
Second premium, Frank B. Johnson, Howlands, Ind	2 00
Third premium, Frank P. Johnson, Howlands, Ind	1 00
Light Brahma hen, Frank P. Johnson, Howlands, Ind	3 00
Second premium, Frank P. Johnson, Howlands, Ind	2 00
Third premium, I. N. Barker & Son, Thorntown, Ind	1 00
Light Brahma cockerel, Frank P. Johnson, Howlands, Ind	3 00
Second premium, Frank P. Johnson, Howlands, Ind	2 00
Third premium, Frank P. Johnson, Howlands, Ind	1 00
Light Brahma pullet, Frank P. Johnson, Howlands, Ind	3 00
Second premium, Frank P. Johnson, Howlands, Ind	2 00
Third premium, I. N. Barker & Son, Thorntown, Ind	1 00
Light Brahma pen, Frank P. Johnson, Howlands, Ind	5 00
Second premium, Frank P. Johnson, Howlands, Ind	3 00
Third premium, I. N. Barker & Son, Thorntown, Ind	2 00
Dark Brahma cock, J. H. Evan, Greenfield, Ind	2 00
Second premium, Bertle Doty, Charleston, Ill	1 00
Third premium, Bertle Doty, Charleston, Ill	
Dark Brahma hen, J. H. Evan, Greenfield, Ind	2 00
Second premium, J. H. Evan, Greenfield, Ind	1 00

Third premium, Bertle Doty, Charleston, Ill	
Dark Brahma cockerel, J. H. Evan, Greenfield, Ind	1 00
Second premium, Chas. McClave, West London, Ohio	
Dark Brahma pullet, Chas. McClave, West London, Ohio	2 00
Second premium, J. H. Evan, Greenfield, Ind	1 00
Third premium, M. H. Phares, Shelbyville, Ind	
Dark Brahma pen, J. H. Evan, Greenfield, Ind	3 00
Second premium, Warbritton Bros., Ladoga, Ind	2 00
Third premium, Warbritton Bros., Ladoga, Ind	

GAMES.

Black-breasted Red cock, Wesley Lanius, Greensburg, Ind	1 00
Second premium, Wesley Lanius, Greensburg, Ind	50
Third premium, Warbritton Bros., Ladoga, Ind	
Black-breasted Red hen, Wesley Lanius, Greensburg Ind	1 00
Second premium, Wesley Lanius, Greensburg, Ind	50
Third premium, Bertle Doty, Charleston, Ill	
Black-breasted Red cockerel, Wesley Lanius, Greensburg, Ind	1 00
Second premium, Wesley Lanius, Greensburg, Ind	50
Third premium, Bertle Doty, Charleston, Ill	
Black-breasted Red pullet, Wesley Lanius, Greensburg, Ind	1 00
Second premium, Wesley Lanius, Greensburg, Ind	50
Third premium, Bertle Doty, Charleston, Ill	
Black-breasted Red pen, Wesley Lanius, Greensburg, Ind	1 00
Second premium, Bertle Doty, Charleston, Ill	
Pit Game cock, Wesley Lanius, Greensburg, Ind	3 00
Second premium, Philip Unger, Indianapolis, Ind	2 00
Third premium, A. M. Acra, Burlington, Ky	1 00
Pit Game hen, A. M. Acra, Burlington, Ky	3 00
Second premium, Wesley Lanius, Greensburg, Ind	2 00
Third premium, A. M. Acra, Burlington, Ky	1 00
Pit Game cockerel, Philip Unger, Indianapolis, Ind	3 00
Second premium, Mrs. H. P. Clark, Indianapolis, Ind	2 00
Third premium, A. M. Acra, Burlington, Ky	1 00
Pit Game pullet, Phillip Unger, Indianapolis, Ind	3 00
Second premium, Wesley Lanius, Greensburg, Ind	2 00
Third premium, Phillip Unger, Indianapolis, Ind	1 00
Pit Game pen, Wesley Lanius, Greensburg, Ind	5 00
Second premium, Phillip Unger, Indianapolis, Ind	3 00
Third premium, A. M. Acra, Burlington, Ky	2 00
Cornish Indian cock, Wesley Lanius, Greensburg, Ind	3 00
Second premium, Columbia Poultry Park, Indianapolis, Ind	2 00
Third premium, John White, Elwood, Ind	1 00
Cornish Indian hen, Chas. McClave, West London, Ohio	3 00
Second premium, Wesley Lanius, Greensburg, Ind	2 00

Third premium, H. A. Danner, Franklin, Ind	1 00
Cornish Indian cockerel, Wesley Lanius, Greensburg, Ind	2 00
Second premium, J. H. Evan, Greenfield, Ind	1 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind	
Cornish Indian pullet, Wesley Lanius, Greensburg, Ind	2 00
Second premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
Third premium, Wesley Lanius, Greensburg, Ind	
Cornish Indian pen, Wesley Lanius, Greensburg, Ind	5 00
Second premium, Columbia Poultry Park, Indianapolis, Ind	3 00
Third premium, John White, Elwood, Ind	2 00

GAME BANTAMS.

Black-breasted Red cock, R. R. Voris, Peoria, Ill	2 00
Second premium, R. R. Voris, Peoria, Ill	1 00
Third premium, R. R. Voris, Peoria, Ill	
Black-breasted Red hen, R. R. Voris, Peoria, Ill	3 00
Second premium, R. R. Voris, Peoria, Ill	2 00
Third premium, R. R. Voris, Peoria, Ill	1 00
Black-breasted Red cockerel, R. R. Voris, Peoria, Ill	3 00
Second premium, R. R. Voris, Peoria, Ill	2 00
Third premium, T. M. Campbell, Darlington, Ind	1 00
Black-breasted Red pullet, R. R. Voris, Peoria, Ill	3 00
Second premium, R. R. Voris, Peoria, Ill	2 00
Third premium, R. R. Voris, Peoria, Ill	1 00
Black-breasted Red pen, R. R. Voris, Peoria, Ill	5 00
Second premium, R. R. Voris, Peoria, Ill	3 00
Third premium, R. R. Voris, Peoria, Ill	2 00
Silver Duckwing cock, R. R. Voris, Peoria, Ill	2 00
Second premium, M. H. Phares, Shelbyville, Ind	1 00
R. R. Voris, Peoria, Ill	
Silver Duckwing hen, R. R. Voris, Peoria, Ill	2 00
Second premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
Third premium, M. H. Phares, Shelbyville, Ind	
Silver Duckwing cockerel, R. R. Voris, Peoria, Ill	2 00
Second premium, R. R. Voris, Peoria, Ill	1 00
Third premium, R. R. Voris, Peoria, Ill	
Silver Duckwing pullet, R. R. Voris, Peoria, Ill	2 00
Second premium, Bertie Doty, Charleston, Ill	1 00
Third premium, M. H. Phares, Shelbyville, Ind	
Silver Duckwing pen, M. H. Phares, Shelbyville, Ind	
Red Pyle cock, R. R. Voris, Peoria, Ill	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00
Third premium, R. R. Voris, Peoria, Ill	1 00
Red Pyle hen, R. R. Voris, Peoria, Ill	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00

Third premium, J. A. Hornung & Sons, Shelbyville, Ind	1 00
Red Pyle cockerel, R. R. Voris, Peoria, Ill	2 00
Second premium, R. R. Voris, Peoria, Ill	1 00
Third premium, R. R. Voris, Peoria, Ill	
Red Pyle pullet, R. R. Voris, Peoria, Ill	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00
Third premium, R. R. Voris, Peoria, Ill	1 00
Red Pyle pen, R. R. Voris, Peoria, Ill	5 00
Second premium, R. R. Voris, Peoria, Ill	3 00
Third premium, T. M. Campbell, Darlington, Ind	2 00
Brown Red Game cock, Wesley Lanius, Greensburg, Ind	50
Brown Red Game hen, Wesley Lanius, Greensbug, Ind	50
Second premium, Bertle Doty, Charleston, Ill	
Brown Red Game pullet, Wesley Lanius, Greensburg, Ind	1 00
Second premium, Wesley Lanius, Greensburg, Ind	50
Third premium, Wesley Lanius, Greensburg, Ind	
Brown Red Game pen, Wesley Lanius, Greensburg, Ind	
Red Pyle Game Standard hen, Bertle Doty, Charleston, Ill	50
Second premium, Bertle Doty, Charleston, Ill	
Red Pyle Game Standard cockerel, Bertle Doty, Charleston, Ill	1 00
Second premium, Bertle Doty, Charleston, Ill	50
Red Pyle Game Standard pullet, Wesley Lanius, Greensburg, Ind	1 00
Second premium, Bertle Doty, Charleston, Ill	50
Red Pyle Game Standard pen, Bertle Doty, Charleston, Ill	

BANTAMS OTHER THAN GAME.

Golden Seabright cock, T. M. Campbell, Darlington, Ind	2 00
Second premium, T. M. Campbell, Darlington, Ind	1 00
Golden Seabright hen, L. H. Seidensticker & Son, Brightwood, Ind.	3 00
Second premium, L. H. Seidensticker & Son, Brightwood, Ind	2 00
Third premium, T. M. Campbell, Darlington, Ind	1 00
Golden Seabright cockerel, T. M. Campbell, Darlington, Ind	1 00
Second premium, T. M. Campbell, Darlington, Ind	50
Third premium, Bertle Doty, Charleston, Ill	
Golden Seabright pullet, Bertle Doty, Charleston, Ill	2 00
Second premium, T. M. Campbell, Darlington, Ind	1 00
Third premium, Bertle Doty, Charleston, Ill	
Golden Seabright pen, T. M. Campbell, Darlington, Ind	3 00
Second premium, Bertle Doty, Charleston, Ill	2 00
Third premium, T. M. Campbell, Darlington, Ind	
Silver Seabright cock, Bertle Doty, Charleston, Ill	2 00
Second premium, L. H. Seidensticker & Son, Brightwood, Ind	1 00
Silver Seabright hen, T. M. Campbell, Darlington, Ind	3 00
Second premium, John Stine & Co., Edinburg, Ind	2 00
Third premium, John Stine & Co., Edinburg, Ind	1 00

Silver Seabright cockerel, Bertie Doty, Charleston, Ill	2 00
Second premium, Bertie Doty, Charleston, Ill	1 00
Third premium, T. M. Campbell, Darlington, Ind	
Silver Seabright pullet, John Stine & Co., Edinburg, Ind	3 00
Second premium, John Stine & Co., Edinburg, Ind	2 00
Third premium, T. M. Campbell, Darlington, Ind	1 00
Silver Seabright pen, T. M. Campbell, Darlington, Ind	5 00
Second premium, John Stine & Co., Edinburg, Ind	3 00
Third premium, L. H. Seidensticker & Son, Brightwood, Ind	2 00
R. C. B. African cock, Chas. McClave, West London, Ohio	2 00
Second premium, Chas. McClave, West London, Ohio	1 00
Third premium, T. M. Campbell, Darlington, Ind	
R. C. B. African hen, Chas. McClave, West London, Ohio	2 00
Second premium, Chas. McClave, West London, Ohio	1 00
Third premium, T. M. Campbell, Darlington, Ind	
R. C. B. African cockerel, Chas. McClave, West London, Ohio	1 00
Second premium, T. M. Campbell, Darlington, Ind	1 00
Third premium, T. M. Campbell, Darlington, Ind	
R. C. B. African pullet, T. M. Campbell, Darlington, Ind	3 00
Second premium, Chas. McClave, West London, Ohio	2 00
Third premium, Chas. McClave, West London, Ohio	
R. C. B. African pen, Chas. McClave, West London, Ohio	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00
Third premium, Bertie Doty, Charleston, Ill	
Buff Cochin cock, Clair F. Johnson, Rushville, Ind	3 00
Second premium, S. B. Lane, Spiceland, Ind	2 00
Third premium, S. B. Lane, Spiceland, Ind	1 00
Buff Cochin hen, S. B. Lane, Spiceland, Ind	3 00
Second premium, Clair F. Johnson, Rushville, Ind	2 00
Third premium, S. B. Lane, Spiceland, Ind	1 00
Buff Cochin cockerel, Clair F. Johnson, Rushville, Ind	3 00
Second premium, Frank R. Hale, Shelbyville, Ind	2 00
Third premium, Clair F. Johnson, Rushville, Ind	1 00
Buff Cochin pullet, Frank R. Hale, Shelbyville, Ind	3,00
Second premium, Clair F. Johnson, Rushville, Ind	2 00
Third premium, Frank R. Hale, Shelbyville, Ind	1 00
Buff Cochin pen, Clair F. Johnson, Rushville, Ind	5 00
Second premium, S. B. Lane, Spiceland, Ind	3 00
Third premium, Frank R. Hale, Shelbyville, Ind	2 00
White Cochin cock, Bertie Doty, Charleston, Ill	1 00
Second premium, Frank R. Hale, Shelbyville, Ind	50
Third premium, Bertie Doty, Charleston, Ill	
White Cochin hen, Bertie Doty, Charleston, Ill	2 00
Second premium, Frank R. Hale, Shelbyville, Ind	1 00
Third premium, Frank R. Hale, Shelbyville, Ind	

White Cochin cockerel, U. R. Fishel, Hope, Ind	1 00
Second premium, Bertle Doty, Charleston, Ill	50
Third premium, Chas. McClave, West London, Ohio	
White Cochin pullet, Bertle Doty, Charleston, Ill	1 00
Second premium, U. R. Fishel, Hope, Ind	
Black Cochin cock, Bertle Doty, Charleston, Ill	50
Second premium, Frank R. Hale, Shelbyville, Ind	
Black Cochin hen, Frank R. Hale, Shelbyville, Ind	1 00
Second premium, Bertle Doty, Charleston, Ill	50
Third premium, Frank R. Hale, Shelbyville, Ind	
Black Cochin cockerel, Frank R. Hale, Shelbyville, Ind	
Black Cochin pullet, Bertle Doty, Charleston, Ill	1 00
Second premium, Frank R. Hale, Charleston, Ill	50
Black cochin pen, Frank R. Hale, Charleston, Ill	1 00
Second premium, Bertle Doty, Charleston, Ill	

TURKEYS.

Bronze cock, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Bronze hen, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Bronze cockerel, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
Bronze pullet, U. R. Fishel, Hope, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
White Holland cock, J. S. Smiley & Son, Milligan, Ind	3 00
Second premium, John Stine & Co., Edinburg, Ind	2 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
White Holland hen, J. A. Hornung & Son, Shelbyville, Ind	3 00
Second premium, W. A. Craver, Crawfordsville, Ind	2 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
White Holland cockerel, J. A. Hornung & Son, Shelbyville, Ind	3 00
Second premium, W. A. Craver, Crawfordsville, Ind	2 00
Third premium, W. A. Craver, Crawfordsville, Ind	2 00
White Holland pullet, J. A. Hornung & Son, Shelbyville, Ind	3 00
Second premium, J. S. Smiley & Son, Milligan, Ind	2 00
Third premium, J. S. Smiley & Son, Milligan, Ind	1 00

GEESE.

Pair Toulouse, old, Chas. McClave, West London, Ohio	3 00
Second premium, J. A. Hornung & Son, Shelbyville, Ind	2 00
Third premium, J. S. Smiley & Son, Milligan, Ind	1 00

Pair Toulouse, young, Chas. McClave, West London, Ohio	3 00
Second premium, J. A. Hornung & Son, Shelbyville, Ind	2 00
Third premium, J. S. Smiley & Son, Milligan, Ind	1 00
Pair Embden, old, J. S. Smiley & Son, Milligan, Ind	3 00
Second premium, J. A. Hornung & Son, Shelbyville, Ind	2 00
Third premium, John Stine & Co., Edinburg, Ind	1 00
Pair Embden, young, J. A. Hornung & Son, Shelbyville, Ind	3 00
Second premium, U. R. Fishel, Hope, Ind	2 00
Third premium, John Stine & Co., Edinburg, Ind	1 00
Pair Chinese, old, Chas. McClave, West London, Ohio	3 00
Second premium, H. A. Danner, Franklin, Ind	2 00
Third premium, J. H. Evan, Greenfield, Ind	1 00
Pair Chinese, young, J. A. Hornung & Son, Shelbyville, Ind	3 00
Second premium, H. A. Danner, Franklin, Ind	2 00

DUCKS.

Pair Pekin, old, Clement & Fike, Prairie View, Ill	3 00
Second premium, J. B. Middleton, Franklin, Ind	2 00
Third premium, H. A. Danner, Franklin, Ind	1 00
Pair Pekin, young, Dr. E. E. Heady, Kokomo, Ind	3 00
Second premium, Dr. E. E. Heady, Kokomo, Ind	2 00
Third premium, Clement & Fike, Prairie View, Ill	2 00
Pair Aylesbury, old, T. M. Campbell, Darlington, Ind	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00
Third premium, Chas. McClave, West London, Ohio	1 00
Pair Aylesbury, young, T. M. Campbell, Darlington, Ind	3 00
Second premium, T. M. Campbell, Darlington, Ind	2 00
Pair Rouen, old, Chas. McClave, West London, Ohio	3 00
Second premium, Chas. McClave, West London, Ohio	2 00
Third premium, J. A. Hornung & Son, Shelbyville, Ind	1 00
Pair Rouen, young, J. S. Smiley & Son, Milligan, Ind	3 00

PIGEONS.

Best display, not less than ten different varieties, G. W. Ewald, Cincinnati O.	10 00
Second premium, G. W. Ewald, Cincinnati, Ohio	5 00

AGRICULTURE.

CLASS 53. GRAIN AND SEEDS.

(A. M. Stewart, Judge, Madison, Ind.)

Leaming, L. B. Clore, Franklin, Ind	$4 00
Second premium, Joe R. Overstreet, Franklin, Ind	3 00
Third premium, J. D. Whitesides, Franklin, Ind	2 00
Boone Co. White, L. B. Clore, Franklin, Ind	4 00
Second premium, L. B. Clore, Franklin, Ind	3 00
Third premium, J. D. Whitesides, Franklin, Ind	2 00
Riley's Favorite, J. D. Whitesides, Franklin, Ind	4 00
Second premium, L. B. Clore, Franklin, Ind	3 00
Third premium, Joe R. Overstreet, Franklin, Ind	2 00
Johnson Co. White Dent, L. B. Clore, Franklin, Ind	4 00
Second premium, J. D. Whitesides, Franklin, Ind	3 00
Third premium, L. B. Clore, Franklin, Ind	2 00
Twenty ears yellow corn, Joe R. Overstreet, Franklin, Ind	10 00
Second premium, L. B. Clore, Franklin, Ind	7 50
Third premium, J. D. Whitesides, Franklin, Ind	5 00
Twenty ears white corn, L. B. Clore, Franklin, Ind	10 00
Second premium, L. B. Clore, Franklin, Ind	7 50
Third premium, Joe R. Overstreet, Franklin, Ind	5 00
Twenty ears any other variety, J. D. Whitesides, Franklin, Ind	10 00
Second premium, Joe R. Overstreet, Franklin, Ind	7 50
Third premium, J. D. Whitesides, Franklin, Ind	5 00
Twenty ears white flint corn, Joe R. Overstreet, Franklin, Ind	3 00
Second premium, J. L. Keckley, Marysville, Ohio	2 00
Third premium, Joe R. Overstreet, Franklin, Ind	1 00
One peck white rice popcorn, Geo. M. Rumler, Mohawk, Ind	3 00
Second premium, Geo. M. Rumler, Mohawk, Ind	2 00
Third premium, Joe R. Overstreet, Franklin, Ind	1 00
One peck any other variety, Geo. M. Rumler, Mohawk, Ind	3 00
Second premium, J. D. Whitesides, Franklin, Ind	2 00
Third premium, J. D. Whitesides, Franklin, Ind	1 00
Six largest ears, any variety, J. D. Whitesides, Franklin, Ind	5 00
Second premium, Joe R. Overstreet, Franklin, Ind	2 50
Six most perfect ears corn, L. B. Clore, Franklin, Ind	5 00
Second premium, L. B. Clore, Franklin, Ind	2 50
Best and most meritorious display of corn, J. D. Whitesides, Franklin, Ind	50 00
Second premium, J. D. Whitesides, Franklin, Ind	25 00
Best half bushel white winter wheat, J. L. Keckley, Marysville, O.	4 00

Second premium, F. M. Whipps & Bro., Marion, Ohio	2 00
Best half bushel red winter wheat, J. L. Keckley, Marysville, Ohio.	4 00
Second premium, J. L. Keckley, Marysville, Ohio	2 00
Best half bushel Fultz wheat, J. L. Keckley, Marysville, Ohio	4 00
Second premium, Geo. M. Rumler, Mohawk, Ind	2 00
Best half bushel red spring wheat, J. L. Keckley, Marysville, Ohio.	4 00
Second premium, Geo. M. Rumler, Mohawk, Ind	2 00
Best display of grain in the straw, J. L. Keckley, Marysville, Ohio.	10 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	5 00
Best display of meadow and pasture grasses	8 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	4 00
Half bushel rye, J. L. Keckley, Marysville, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Half bushel white oats, J. L. Keckley, Marysville, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Half bushel black oats, J. L. Keckley, Marysville, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Half bushel silver hull buckwheat, J. L. Keckley, Marysville, Ohio.	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Half bushel barley, J. L. Keckley, Marysville, Ohio	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Half bushel millet seed, Geo. M. Rumler, Mohawk, Ind	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Half bushel timothy seed, J. L. Keckley, Marysville, Ohio	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Half bushel orchard grass seed, Geo. M. Rumler, Mohawk, Ind	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Half bushel Hungarian grass seed, J. L. Keckley, Marysville, Ohio.	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Half bushel Kentucky blue grass seed, Geo. M. Rumler, Mohawk, Ind.	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Half bushel mammoth clover seed, Geo. M. Rumler, Mohawk, Ind.	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Half bushel red clover seed, Geo. M. Rumler, Mohawk, Ind	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Half bushel flaxseed, Geo. M. Rumler, Mohawk, Ind	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Best collection of grain and seed grown by exhibitor, Geo. M. Rumler, Mohawk, Ind	10 00
Second premium, J. L. Keckley, Marysville, Ohio	5 00
Best display and collection of farm products by any county or society in Indiana, J. D. Whitesides, Franklin, Ind	60 00
Second premium, Geo. M. Rumler, Mohawk, Ind	30 00

CLASS 54. VEGETABLES.

(A. M. Stewart, Judge, Madison, Ind.)

Three white egg plant, B. F. Whaley, Shelbyville, Ind.	$ 2 00
Second premium, John Marvel, Fairmount, Ind.	1 00
Three New York purple egg plant, F. M. Whipps & Bro., Marion, O.	2 00
Second premium, B. F. Whaley, Shelbyville, Ind.	1 00
Third premium, John Marvel, Fairmount, Ind.	50
Twelve best cucumbers, J. D. Whitesides, Franklin, Ind.	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Six cauliflowers, B. F. Whaley, Shelbyville, Ind.	2 00
Twelve ears late sweet corn, J. D. Whitesides, Franklin, Ind.	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio.	1 00
Third premium, J. L. Keckley, Marysville, Ohio.	50
Three Hubbard squash, F. M. Whipps & Bro., Marion, Ohio.	2 00
Second premium, J. L. Keckley, Marysville, Ohio.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Three Boston Marrow squash, F. M. Whipps & Bro., Marion, Ohio.	2 00
Second premium, J. D. Whitesides, Franklin, Ind.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Three Marblehead squash, F. M. Whipps & Bro., Marion, Ohio.	2 00
Second premium, J. D. Whitesides, Franklin, Ind.	1 00
Third premium, J. L. Keckley, Marysville, Ohio.	50
Three Red Hubbard squash, John L. Baker, Waldron, Ind.	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio.	1 00
Third premium, J. L. Keckley, Marysville, Ohio.	50
Three Kershaw squash, John Marvel, Fairmount, Ind.	2 00
Second premium, J. D. Whitesides, Franklin, Ind.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Three Summer Crooked Neck squash, J. L. Keckley, Marysville, O.	2 00
Second premium, John Marvel, Fairmount, Ind.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Three field pumpkins, John Marvel, Fairmount, Ind.	2 00
Second premium, J. D. Whitesides, Franklin, Ind.	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio.	50
Largest squash, J. D. Whitesides, Franklin, Ind.	2 00
Second premium, John Marvel, Fairmount, Ind.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Largest pumpkin, J. D. Whitesides, Franklin, Ind.	2 00
Second premium, John Marvel, Fairmount, Ind.	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio.	50
Six Drumhead cabbage, John Marvel, Fairmount, Ind.	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio.	1 00
Third premium, J. L. Keckley, Marysville, Ohio.	50

Six Flat Dutch cabbage, J. L. Keckley, Marysville, Ohio	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Third premium, J. D. Douglas & Sons, Hope, Ind	50
Six early cabbage, John Marvel, Fairmount, Ind	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Six red cabbage, B. F. Whaley, Shelbyville, Ind	2 00
Second premium, W. J. George, Indianapolis, Ind	1 00
Twelve stalks of celery, W. J. George, Indianapolis, Ind	2 00
Second premium, W. J. George, Indianapolis, Ind	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Best display of celery, B. F. Whaley, Shelbyville, Ind	3 00
Second premium, John Marvel, Fairmount, Ind	2 00
One-half peck Lima beans, germ shell, B. F. Whaley, Shelbyville, Ind.	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Third premium, John Marvel, Fairmount, Ind	50
One-half peck white Marrowfat beans, J. L. Keckley, Marysville, Ohio	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind	50
One-half peck white Navy beans, J. L. Keckley, Marysville, Ohio	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind	50
One-half peck colored Kidney beans, Geo. M. Rumler, Mohawk, Ind.	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
One-half peck white Kidney beans, John Marvel, Fairmount, Ind	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Third premium, J. L. Keckley, Marysville, Ohio	50
One-half peck garden peas, dry, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind	50
Best peck purple tomatoes, John Marvel, Fairmount, Ind	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Best peck red tomatoes, B. F. Whaley, Shelbyville, Ind	2 00
Second premium, J. D. Whitesides, Franklin, Ind	1 00
Third premium, John Marvel, Fairmount, Ind	50
Best peck yellow tomatoes, John Marvel, Fairmount, Ind	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Collection of tomatoes, ten varieties, B. F. Whaley, Shelbyville, Ind.	3 00
Second premium, John Marvel, Fairmount, Ind	2 00

Third premium, J. D. Whitesides, Franklin, Ind.	1 00
Six largest and best nutmeg melons, John Marvel, Fairmount, Ind.	2 00
Second premium, W. J. George, Indianapolis, Ind.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Six largest and best musk melons, B. F. Whaley, Shelbyville, Ind.	2 00
Six largest and best Gypsy watermelons, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, B. F. Whaley, Shelbyville, Ind.	1 00
Six largest and best Sweet Hart melons, F. M. Whipps & Bro., Marion, Ohio	1 00
Second premium, B. F. Whaley, Shelbyville, Ind.	1 00
Six largest and best White Icing melons, B. F. Whaley, Shelbyville, Ind.	2 00
Display of muskmelons, not less than six varieties, John Marvel, Fairmount, Ind.	5 00
Second premium, B. F. Whaley, Shelbyville, Ind.	3 00
Display of water melons, not less than 6 varieties, F. M. Whipps & Bro., Marion, Ohio	5 00
Second premium, B. F. Whaley, Shelbyville, Ind.	3 00
Largest and best collection of vegetables, John Marvel. Fairmount, Ind.	15 00
Second premium, J. L. Keckley, Marysville, Ohio	10 00
Third premium, J. D. Whitesides, Franklin, Ind.	5 00
Peck of peppers for pickling, B. F. Whaley, Shelbyville. Ind.	2 00
Second premium, W. B. Flick, Lawrence, Ind.	1 00
Third premium, John Marvel, Fairmount, Ind.	50
Display of peppers, John Marvel, Fairmount, Ind.	2 00
Second premium, B. F. Whaley, Shelbyville, Ind.	1 00
Third premium, J. D. Whitesides, Franklin, Ind.	50

CLASS 55. ROOT CROP.

(A. M. Stewart, Judge, Madison, Ind.)

Six purple top turnips, B. F. Whaley, Shelbyville, Ind.	$2 00
Second premium, J. D. Whitesides, Franklin, Ind.	1 00
Six any other variety, B. F. Whaley, Shelbyville, Ind.	2 00
Six carrots for table, J. D. Whitesides, Franklin, Ind.	2 00
Second premium, J. D. Whitesides, Franklin, Ind.	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.	50
Six carrots for stock, J. D. Whitesides, Franklin, Ind.	2 00
Second premium, J. D. Whitesides, Franklin, Ind.	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Six roots salsify, John Marvel, Fairmount, Ind.	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.	50

Six roots horseradish, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind	50
Six long red table beets, J. D. Whitesides, Franklin, Ind	2 00
Second premium, J. D. Whitesides, Franklin, Ind	1 00
Third premium, B. F. Whaley, Shelbyville, Ind	50
Six turnip beets, J. D. Whitesides, Franklin, Ind	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Third premium, B. F. Whaley, Shelbyville, Ind	50
Six sugar beets, J. D. Whitesides, Franklin, Ind	2 00
Second premium, John L. Baker, Waldron, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Six red Mangelwurzel, J. D. Whitesides, Franklin, Ind	2 00
Second premium, John L. Baker, Waldron, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Six parsnips, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. D. Whitesides, Franklin, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Six turnip radish, same kind, J. D. Whitesides, Franklin, Ind	2 00
Second premium, J. D. Whitesides, Franklin, Ind	1 00
Third premium, B. F. Whaley, Shelbyville, Ind	50
Six winter radish, J. D. Whitesides, Franklin, Ind	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Six long summer radishes, J. D. Whitesides, Franklin, Ind	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Peck of Prize-Taker onions, B. F. Whaley, Shelbyville, Ind	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Third premium, J. L. Keckley, Marysville, Ohio	50
Peck Yellow Globe onions, B. F. Whaley, Shelbyville, Ind	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Third premium, J. L. Keckley, Marysville, Ohio	50
Peck White Globe onions, J. L. Keckley, Marysville, Ohio	2 00
Second premium, John L. Baker, Waldron, Ind	1 00
One-half peck yellow onion sets, J. D. Whitesides, Franklin, Ind	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Third premium, J. L. Keckley, Marysville, Ohio	50
One-half peck red onion sets, J. D. Whitesides, Franklin, Ind	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
One-half peck white onion sets, B. F. Whaley, Shelbyville, Ind	2 00
Broom corn, Geo. M. Rumler, Mohawk, Ind	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Third premium, John Marvel, Fairmount, Ind	50
Potato onions, F. M. Whipps & Bro. Marion, Ohio	2 00

Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Third premium, John L. Baker, Waldron, Ind	50
Yellow Danvers onions, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Red Weatherfield onions, J. L. Keckley, Marysville, Ohio	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Display of onions, all varieties, F. M. Whipps & Bro., Marion, Ohio.	5 00
Second premium, J. L. Keckley, Marysville, Ohio	3 00
Third premium, B. F. Whaley, Shelbyville, Ind	1 00
Largest and best display of root crops, J. D. Whitesides, Franklin, Ind.	5 00

CLASS 56. POTATOES.

Peck Early Rose, J. L. Keckley, Marysville, Ohio	$2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Third premium, John L. Baker, Waldron, Ind	50
Peck Early Ohio, J. L. Keckley, Marysville, Ohio	2 00
Second premium, J. D. Whitesides, Franklin, Ind	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Peck Bliss Triumph, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. D. Whitesides, Franklin, Ind	1 00
Third premium, J. L. Keckley, Marysville, Ohio	50
Peck Uncle Sam, John L. Baker, Waldron, Ind	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium. F. M. Whipps & Bro., Marion, Ohio	50
Peck White Rose, F. M. Whipps & Bro., Marion, Ohio	1 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Peck White Elephant, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, John L. Baker, Waldron, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Peck Beauty Hebron, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Peck Rural New Yorker No. 3, F. M. Whipps & Bro., Marion, Ohio.	1 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, John L. Baker, Waldron, Ind	50
Peck Queen of the West, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, John L. Baker, Waldron, Ind	50
Peck Empire State, J. L. Keckley, Marysville, Ohio	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00

Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Peck Green Mountain, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Peck Early Puritan, J. D. Whitesides, Franklin, Ind	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Peck Early Harvest, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, John L. Baker, Waldron, Ind	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Peck Burbank Seedling, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, J. D. Whitesides, Franklin, Ind	50
Peck Bovee, J. L. Keckley, Marysville, Ohio	2 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	1 00
Third premium, John L. Baker, Waldron, Ind	50
Peck Duchess, F. M. Whipps & Bro., Marion, Ohio	2 00
Second premium, J. D. Whitesides, Franklin, Ind	1 00
Third premium, J. L. Keckley, Marysville, Ohio	50
Largest and best collection of potatoes, F. M. Whipps & Bro., Marion, Ohio	8 00
Second premium, J. L. Keckley, Marysville, Ohio	4 00
Third premium, J. D. Whitesides, Franklin, Ind	2 00
Yellow sweet potatoes, Geo. M. Rumler, Mohawk, Ind	2 00
Second premium, J. L. Keckley, Marysville, Ohio	1 00
Third premium, F. M. Whipps & Bro., Marion, Ohio	50
Peck red sweet potatoes, J. D. Whitesides, Franklin, Ind	2 00
Second premium, B. F. Whaley, Shelbyville, Ind	1 00
Display of sweet potatoes, J. L. Keckley, Marysville, Ohio	5 00
Second premium, F. M. Whipps & Bro., Marion, Ohio	3 00
Third premium, B. F. Whaley, Shelbyville, Ind	1 00

HORTICULTURE.

CLASS 57. APPLES.

(H. M. Simpson, Judge, Vincennes, Ind.)

Fifteen varieties for home use, Geo. W. Burton, Leipsic, Ind	$15 00
Second premium, Lagrange Co. A. & H. Society, Topeka, Ind	10 00
Ten varieties for market, Geo. W. Burton, Leipsic, Ind	10 00
Second premium, Geo. W. Burton, Leipsic, Ind	6 00
Five varieties for culinary purposes, H. M. Stout, Trafalgar, Ind	5 00

Second premium, Geo. W. Burton, Leipsic, Ind	3 00
Plate Maiden Blush, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Smith Cider, Jas. Perrine, Lebanon, Ind	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Ben Davis, C. P. Bradley, South Bend, Ind	1 50
Second premium, Geo. W. Burton, Leipsic, Ind	1 00
Plate Rome Beauty, Jas. Perrine, Lebanon, Ind	1 50
Second premium, D. F. Corwin, Springboro, Ohio	1 00
Plate Winesap, Geo. W. Burton, Leipsic, Ind	1 50
Second premium, Geo. W. Burton, Leipsic, Ind	1 00
Plate Rambo, Geo. W. Burton, Leipsic, Ind	1 50
Second premium, Geo. W. Burton, Leipsic, Ind	1 00
Plate Yellow Bellflower, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Lagrange Co. A. & H. Society, Topeka, Ind	1 00
Plate Fallawater, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Northwestern Greening, Evan Swift, Franklin, Ind	1 00
Plate Willow Twig, Reed & Fielding, Glenwood, Ind	1 50
Second premium, J. J. Vance, Springport, Ind	1 00
Plate Westfield (Seek-No-Further), Reed & Fielding, Glenwood, Ind.	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Wagner, D. F. Corwin, Springboro, Ohio	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Gravenstein, Lagrange Co. A. & H. Society, Topeka, Ind	1 50
Second premium, J. J. Vance, Springport, Ind	1 00
Plate Fameuse or Snow, Reed & Fielding, Glenwood, Ind	1 50
Second premium, Jas. M. Zion, Clark's Hill, Ind	1 00
Plate Moore's Sweet, Evan Swift, Franklin, Ind	1 50
Second premium, H. M. Stout, Trafalgar, Ind	1 00
Plate Tompkins' King, D. F. Corwin, Springboro, Ohio	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Hubbardston, Reed & Fielding, Glenwood, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Red Canada, Reed & Fielding, Glenwood, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Rhode Island Greening, Jas. M. Zion, Clark's Hill, Ind	1 50
Second premium, D. F. Corwin, Springboro, Ohio	1 00
Plate Fall Wine, Geo. W. Burton, Leipsic, Ind	1 50
Second premium, D. F. Corwin, Springboro, Ohio	1 00
Plate Duchess, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Wolf River, Evan Swift, Franklin, Ind	1 50
Second premium, Jas. M. Zion, Clark's Hill, Ind	1 00

Plate Yellow Transparent, W. B. Flick, Lawrence, Ind	1 50
Plate Bailey's Sweet, D. F. Corwin, Springboro, Ohio	1 50
Second premium, W. H. Vance, Springport, Ind	1 00
Plate White Pippin, D. F. Corwin, Springboro, Ohio	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Baldwin, Evan Swift, Franklin, Ind	1 50
Second premium, Jos. Perrine, Lebanon, Ind	1 00
Plate York Imperial, Reed & Fielding, Glenwood, Ind	1 00
Plate Northern Spy, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Grimes Golden, Geo. W. Burton, Leipsic, Ind	1 50
Second premium, Jos. Perrine, Lebanon, Ind	1 00
Plate Roman Stem, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Indiana Favorite, Reed & Fielding, Glenwood, Ind	1 50
Second premium, Mrs. D. E. Fuller, Debaney, Ind	1 00
Plate Belmont, W. H. Vance, Springport, Ind	1 50
Second premium, J. J. Vance, Springport, Ind	1 00
Plate Jonathan, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Geo. W. Burton, Leipsic, Ind	1 00
Plate Lansingburg, Evan Swift, Trafalgar, Ind	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Talman Sweet, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Vandevere, Reed & Fielding, Glenwood, Ind	1 50
Second premium, Mrs. D. E. Fuller, Debaney, Ind	1 00
Plate Twenty Ounce, D. F. Corwin, Springboro, Ohio	1 50
Second premium, W. H. Vance, Springport, Ind	1 00
Plate Rall's Genet, Geo. W. Burton, Leipsic, Ind	1 50
Second premium, Geo. W. Burton, Leipsic, Ind	1 00
Plate Wealthy, M. H. Phares, Shelbyville, Ind	1 50
Second premium, John Marvel, Fairmount, Ind	1 00
Plate Stark, Evan Swift, Franklin, Ind	1 50
Second premium, Geo. W. Burton, Leipsic, Ind	1 00
Plate Pewaukee, Reed & Fielding, Glenwood, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate English Russet, Evan Swift, Franklin, Ind	1 50
Second premium, H. M. Stout, Trafalgar, Ind	1 00
Plate Mann, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Jos. Perrine, Lebanon, Ind	1 00
Plate Peck's Pleasant, Jos. Perrine, Lebanon, Ind	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Missouri Pippin, Reed & Fielding, Glenwood, Ind	1 00
Plate Gano, D. F. Corwin, Springboro, Ohio	1 50
Second premium, Jos. Perrine, Lebanon, Ind	1 00

Plate Gideon, Lagrange Co. A. & H. Society, Topeka, Ind	1 50
Second premium, Lagrange Co. A. & H. Society, Topeka, Ind	1 00
Plate Benoni, Lagrange Co. A. & H. Society, Topeka, Ind	1 50
Second premium, Lagrange Co. A. & H. Society, Topeka, Ind	1 00
Plate Northern Spitzenburg, Reed & Fielding, Glenwood, Ind	1 50
Second premium, W. H. Vance, Springport, Ind	1 00
Plate Autumn Strawberry, Evan Swift, Franklin, Ind	1 50
Second premium, Lagrange Co. A. & H. Society, Topeka, Ind	1 00
Plate McIntosh Red, W. H. Vance, Springport, Ind	1 50
Plate largest, any kind, Jas. M. Zion, Clark's Hill, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Shenango, Evan Swift, Franklin, Ind	1 50
Second premium, W. H. Vance, Springport, Ind	1 00
Plate Arkansas Black, Jas. M. Zion, Clark's Hill, Ind	1 50
Plate Plumb's Cider, W. H. Vance, Springport, Ind	1 50
Second premium, J. J. Vance, Springport, Ind	1 00

CRAB APPLES.

Plate Hyslop, Jas. M. Zion, Clark's Hill, Ind	1 00
Second premium, H. M. Stout, Trafalgar, Ind	50
Plate Martha, Evan Swift, Franklin, Ind	1 00
Second premium, Jas. M. Zion, Clark's Hill, Ind	50
Plate Transcendent, J. J. Vance, Springport, Ind	1 00
Plate Whitney, C. P. Bradley, South Bend, Ind	1 00
Plate Kentucky Red Cider, Geo. W. Burton, Leipsic, Ind	1 00
Second premium, Mrs. D. E. Fuller, Debaney, Ind	50
Five varieties crab apples, Evan Swift, Franklin, Ind	2 00
Second premium, J. J. Vance, Springport, Ind	1 00

PEARS—SINGLE PLATES.

Plate Bartlett, C. P. Bradley, South Bend, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Anjou, C. P. Bradley, South Bend, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Angouleme (Duchess), C. P. Bradley, South Bend, Ind	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Flemish Beauty, Jos. Perrine, Lebanon, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Howell, Reed & Fielding, Glenwood, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Keiffer, A. G. Chandlee, Chipley, Fla	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Sheldon, Lagrange Co. A. & H. Society, Topeka, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00

Plate Seckel, H. M. Stout, Trafalgar, Ind	1 50
Second premium, Reed & Fielding, Glenwood, Ind	1 00
Plate Easter Buerre, J. J. Vance, Springport, Ind	1 50
Plate Lawrence, Evan Swift, Franklin, Ind	1 50
Plate Winter Nelis, Evan Swift, Franklin, Ind	1 50
Second premium, H. M. Stout, Trafalgar, Ind	1 00
Plate Vickar, Benj. W. Douglass, Indianapolis, Ind	1 50
Second premium, Jos. Perrine, Lebanon, Ind	1 00
Plate Garber, J. J. Vance, Springport, Ind	1 00
Second premium, W. H. Vance, Springport, Ind	75
Plate Bosc, Jos. Perrine, Lebanon, Ind	1 00
Second premium, D. F. Corwin, Springboro, Ohio	75
Plate Clairgean, C. P. Bradley, South Bend, Ind	1 00
Second premium, H. M. Stout, Trafalgar, Ind	75
Plate Vermont Beauty, J. J. Vance, Springport, Ind	1 00
Plate Worden Seckel, H. M. Stout, Trafalgar, Ind	1 00
Second premium, J. J. Vance, Springport, Ind	75
Five varieties for family use, C. P. Bradley, South Bend, Ind	3 00
Second premium, J. J. Vance, Springport, Ind	1 50
Five varieties for market use, H. M. Stout, Trafalgar, Ind	3 00
Second premium, C. P. Bradley, South Bend, Ind	1 50

PEACHES—COLLECTIONS.

Six varieties for any purpose, J. J. Vance, Springport, Ind	4 00
Three varieties for market, J. J. Vance, Springport, Ind	3 00

SINGLE PLATES.

Plate Clings, Evan Swift, Franklin, Ind	1 50
Second premium, J. J. Vance, Springport, Ind	1 00
Plate Free Stones, C. P. Bradley, South Bend, Ind	1 50
Second premium, Evan Swift, Franklin, Ind	1 00
Plate Seedlings, not exhibited before, John Marvel, Fairmount, Ind.	1 50
Second premium, J. J. Vance, Springport, Ind	1 00

QUINCES—COLLECTIONS.

Best collection, not less than three varieties, Evan Swift, Franklin, Ind.	2 00
Second premium, W. B. Flick, Lawrence, Ind	1 00

SINGLE PLATES.

Plate Orange quince, C. P. Bradley, South Bend, Ind	1 50
Second premium, H. M. Stout, Trafalgar, Ind	1 00
Plate Meeche's Prolific, Jas. M. Zion, Clark's Hill, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00

Plate Champion, Lagrange Co. A. & H. Society, Topeka, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Missouri Mammoth, Jas. M. Zion, Clark's Hill, Ind	1 50

PLUMS.

Best collection native plums, Jas. M. Zion, Clerk's Hill, Ind	2 00
Plate native plums, Jas. M. Zion, Clark's Hill, Ind	1 50
Second premium, Sylvester Johnson, Irvington, Ind	1 00
Plate European plums, J. J. Vance, Springport, Ind	1 50
Second premium, W. B. Flick, Lawrence, Ind	1 00

GRAPES—GROWN IN OPEN AIR.

Six varieties for family use, C. P. Bradley, South Bend, Ind	3 00
Six varieties for market, C. P. Bradley, South Bend, Ind	3 00
Five clusters, any kind, C. P. Bradley, South Bend, Ind	2 00
Second premium, Sylvester Johnson, Irvington, Ind	1 00
Best collection grown by exhibitor, C. P. Bradley, South Bend, Ind.	10 00

SINGLE PLATES.

Plate Worden, W. B. Flick, Lawrence, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Concord, W. B. Flick, Lawrence, Ind	1 50
Second premium, Sylvester Johnson, Irvington, Ind	1 00
Plate Wilder, C. P. Bradley, South Bend, Ind	1 50
Second premium, Sylvester Johnson, Irvington, Ind	1 00
Plate Duchess, Sylvester Johnson, Irvington, Ind	1 50
Plate Brighton, C. P. Bradley, South Bend, Ind	1 50
Plate Salem, C. P. Bradley, South Bend, Ind	1 50
Second premium, Sylvester Johnson, Irvington, Ind	1 00
Plate Lindley, Sylvester Johnson, Irvington, Ind	1 50
Plate Pocklington, Sylvester Johnson, Irvington, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Niagara, C. P. Bradley, South Bend, Ind	1 50
Second premium, Jennie H. Droke, Gallaudet, Ind	1 00
Plate Diamond, Sylvester Johnson, Irvington, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate McPike, Sylvester Johnson, Irvington, Ind	1 50
Plate Delaware, Jennie H. Droke, Gallaudet, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Agawan, C. P. Bradley, South Bend, Ind	1 50
Second premium, C. P. Bradley, South Bend, Ind	1 00
Plate Catawaba, Sylvester Johnson, Irvington, Ind	1 50
Second premium, H. M. Stout, Trafalgar, Ind	1 00
Plate Ulster Prolific, Sylvester Johnson, Irvington, Ind	1 50

Plate Moore's Ealy, C. P. Bradley, South Bend, Ind.	1 50
Second premium, Sylvester Johnson, Irvington, Ind.	1 00
Plate Ives, C. P. Bradley, South Bend, Ind.	1 50
Second premium, C. P. Bradley, South Bend, Ind.	1 00
Plate Carman, Sylvester Johnson, Irvington, Ind.	1 50
Plate Mills, Sylvester Johnson, Irvington, Ind.	1 50
Plate Aminia, Sylvester Johnson, Irvington, Ind.	1 50
Plate Woodruff Red, Sylvester Johnson, Irvington, Ind.	1 50
Second premium, Jennie H. Droke, Gallaudet, Ind.	1 00
Plate Wyoming Red, Sylvester Johnson, Irvington, Ind.	1 50
Plate Jonathan, Sylvester Johnson, Irvington, Ind.	1 50
Plate Green Mountain, Sylvester Johnson, Irvington, Ind.	1 50
Plate Empire State, C. P. Bradley, South Bend, Ind.	1 50
Plate Campbell, Sylvester Johnson, Irvington, Ind.	1 00
Plate hot house grapes, Sylvester Johnson, Irvington, Ind.	1 00
Plate seedlings, not named, Sylvester Johnson, Irvington, Ind.	1 50
Plate Jefferson, Sylvester Johnson, Irvington, Ind.	1 50
Plate Clinton, Sylvester Johnson, Irvington, Ind.	1 50
Plate Brilliant, Sylvester Johnson, Irvington, Ind.	1 50
Plate Prentiss, Sylvester Johnson, Irvington, Ind.	1 50
Plate Lady Washington, Sylvester Johnson, Irvington, Ind.	1 50
Plate Cottage, Sylvester Johnson, Irvington, Ind.	1 50
Plate Hayes, Sylvester Johnson, Irvington, Ind.	1 50
Plate Isabella, Sylvester Johnson, Irvington, Ind.	1 50

MISCELLANEOUS.

Plate persimmons, A. G. Chandlee, Chipley, Fla.	1 00
Second premium, Mrs. D. E. Fuller, Dabaney, Ind.	50
Plate pawpaws, H. M. Stout, Trafalgar, Ind.	1 00
Second premium, Evan Swift, Franklin, Ind.	50
Collection of native nuts, Mrs. D. E. Fuller, Dabaney, Ind.	1 00

CHAMPION.

Best and most artistic display of fruits by any county society in Indiana, agricultural or horticultural, Evan Swift, Franklin, Ind.	50 00
Second premium, St. Joseph Co. Hort. Society, South Bend, Ind.	40 00
Third premium, Lagrange Co. A. & H. Society, Topeka, Ind.	30 00
Third premium, Mrs. D. E. Fuller, Dabaney, Ind.	20 00

INDIVIDUAL SWEEPSTAKES.

Best and most artistic display of fruits grown and exhibited by one individual in Indiana, W. B. Flick, Lawrence, Ind.	25 00
Second premium, Reed & Fielding, Glenwood, Ind.	15 00

FLOWERS.

CLASS 58. PLANTS.

(Geo. C. Stelhorn, Judge, Indianapolis, Ind.)

Ten palms, E. A. Wilson, Indianapolis, Ind.	$10 00
Twenty variegated show plants, E. A. Wilson, Indianapolis, Ind.	10 00
Ten blooming begonias, E. A. Wilson, Indianapolis, Ind.	6 00
Ten foliage begonias, Bauer & Smith, Indianapolis, Ind.	7 00
Second premium, E. A. Wilson, Indianapolis, Ind.	4 00
Two vases filled, either iron, rustic or wire, E. A. Wilson, Indianapolis, Ind.	8 00
Two specimens Boston ferns. Bauer & Smith, Indianapolis, Ind.	5 00
Second premium, E. A. Wilson, Indianapolis, Ind.	3 00
Best arrangement of show plants and fancy basket, E. A. Wilson, Indianapolis, Ind.	10 00

SPECIAL.

Display and arrangement of show plants, E. A. Wilson, Indianapolis, Ind.	35 00
Second premium, Bauer & Smith, Indianapolis, Ind.	25 00
Two floral arrangements, John Rieman, Indianapolis, Ind.	25 00
Second premium, E. A. Wilson, Indianapolis, Ind.	15 00
Two baskets, John Rieman, Indianapolis, Ind.	15 00
Second premium, E. A. Wilson, Indianapolis, Ind.	10 00
Collection cut roses, W. W. Coles, Kokomo, Ind.	10 00
Second premium, E. A. Wilson, Indianapolis, Ind.	6 00
Collection cut flowers, W. W. Coles, Kokomo, Ind.	15 00
Second premium, E. A. Wilson, Indianapolis, Ind.	10 00
Collection dahlias, W. W. Coles, Kokomo, Ind.	5 00
Second premium, John Rieman, Indianapolis, Ind.	3 00
Collection cut gladioli, John Rieman, Indianapolis, Ind.	15 00
Second premium, E. W. Wilson, Indianapolis, Ind.	10 00
Third premium, E. A. Wilson, Indianapolis, Ind.	5 00
Original show arrangement of flowers, John Rieman, Indianapolis, Ind	50 00
Second premium, E. A. Wilson, Indianapolis, Ind.	35 00
Three bouquets, John Rieman, Indianapolis, Ind.	12 00
Second premium, W. W. Coles, Kokomo, Ind.	8 00

CLASS 59. AMATEUR.

Collection begonias, Mary E. Sullivan, Indianapolis, Ind.	$4 00
Second premium, Mrs. Frank P. Johnson, Howlands, Ind.	2 00

Collection foliage plants, Mary E. Sullivan, Indianapolis, Ind	3 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind	1 50
Collection trailing and climbing plants, Mrs. W. B. Flick, Lawrence, Ind	3 00
Specimen calladium, Mrs. W. B. Flick, Lawrence, Ind	2 00

CUT FLOWERS.

Collection geraniums, A. R. Edmunds, Indianapolis, Ind	3 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind	2 00
Collection cut flowers, A. R. Edmunds, Indianapolis, Ind	4 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind	2 00
Collection verbenas, Mrs. W. B. Flick, Lawrence, Ind	3 00
Second premium, A. R. Edmunds, Indianapolis, Ind	2 00
Collection dahlias, A. R. Edmunds, Indianapolis, Ind	3 00
Second premium, Jennie H. Droke, Gallaudet, Ind	2 00
Collection gladiolus, A. R. Edmunds, Indianapolis, Ind	3 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind	2 00
Collection cannas, A. R. Edmunds, Indianapolis, Ind	3 00
Second premium, Mary E. Sullivan, Indianapolis, Ind	2 00
Twelve carnations, A. R. Edmunds, Indianapolis, Ind	3 00
Two bouquets of garden flowers, A. R. Edmunds, Indianapolis, Ind.	4 00
Second premium, Mary E. Sullivan, Indianapolis, Ind	2 00

CLASS 60. BEES AND HONEY.

(Joseph C. Kimmell, Judge, Ligonier, Ind.)

Best display of bees, honey, apiary products, supplies and appliances, Geo. M. Rumler, Mohawk, Ind	$25 00
Second premium, Geo. M. Rumler, Mohawk, Ind	15 00
Third premium, C. M. Scott & Co., Indianapolis, Ind	10 00

CLASS 61. TABLE LUXURIES.

(Mrs. S. W. Dungan, Judge, Franklin, Ind.)

Home-made cheese, Mrs. N. A. Ford, Indianapolis, Ind	$1 50
Second premium, Maude Bryson, Indianapolis, Ind	75
Fancy cheese, Mrs. J. B. Powers, Indianapolis, Ind	1 50
Second premium, Mrs. N. A. Ford, Indianapolis, Ind	75
Maple syrup, in most marketable shape, Jennie H. Droke, Gallaudet, Ind	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00
Maple sugar, Mrs. J. B. Powers, Indianapolis, Ind	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind	1 00

Bread, wheat, yeast, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Olive L. Hatton, Indianapolis, Ind	75
Bread, wheat, salt rising, Mrs. E. T. Drake, Edinburg, Ind	1 50
Graham bread, yeast, Mrs. N. A. Ford, Indianapolis, Ind	1 50
Second premium, Maude Bryson, Indianapolis, Ind	75
Boston brown bread, Edna Gilmore, Broad Ripple, Ind	1 50
Second premium, Maude Bryson, Indianapolis, Ind	75
Rusk, whole wheat, Mrs. E. T. Drake, Edinburg, Ind	1 50
Corn gems, Mrs. E. T. Drake, Edinburg, Ind	1 50
Second premium, Mrs. Bettie Clore, Franklin, Ind	75
Dozen rolls, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Olive L. Hatton, Indianapolis, Ind	75
Ginger bread, Maude Bryson, Indianapolis, Ind	1 50
Second premium, Mrs. J. B. Powers, Indianapolis, Ind	75
Ginger cookies, Mrs. Bettie Clore, Franklin, Ind	1 50
Second premium, Maude, Bryson, Indianapolis, Ind	75
Fig cake, Mrs. N. A. Ford, Indianapolis, Ind	1 50
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind	75
Layer cake, caramel, orange, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind	75
Layer cake, caramel, chocolate, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Alice V. Hatton, Indianapolis, Ind	75
Marble loaf cake, Mrs. L. K. Brown, Indianapolis, Ind	1 50
Second premium, Alice V. Hatton, Indianapolis, Ind	75
White Mountain cake, Mrs. Jerome Dunlap, Lafayette, Ind	1 50
Second premium, Mrs. Wm. Welch, Indianapolis, Ind	75
Cocoanut cake, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind	75
Sunshine cake, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Maude, Bryson, Indianapolis, Ind	75
Angel's food, Margaret A. Gregg, Greenwood, Ind	1 50
Second premium, Mrs. N. A. Ford, Indianapolis, Ind	75
Hickory nut loaf cake, Mrs. Jerome Dunlap, Lafayette, Ind	1 50
Second premium, Alice V. Hatton, Indianapolis, Ind	75
Hickory nut layer cake, Mrs. Jerome Dunlap, Lafayette, Ind	1 50
Second premium, Mrs. N. A. Ford, Indianapolis, Ind	75
Fruit cake, Mrs. Frank Wood, Indianapolis, Ind	3 00
Second premium, Mrs. L. K. Brown, Indianapolis, Ind	2 00
White fruit cake, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Margaret A. Gregg, Greenwood, Ind	75
White cake, Mrs. J. M. Smock, Southport, Ind	1 50
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind	75
Chocolate cake, layer, Alice V. Hatton, Indianapolis, Ind	1 50
Second premium, Mrs. F. C. Stewart, Indianapolis, Ind	75
Chocolate cake, loaf, Mrs. Jerome Dunlap, Lafayette, Ind	1 50

Second premium, Mrs. F. C. Stewart, Indianapolis, Ind	75
Crullers, Alice V. Hatton, Indianapolis, Ind	1 50
Second premium, Mrs. Frank P. Johnson, Howlands, Ind	75
Cookies, Mrs. Bettie Clore, Franklin, Ind	1 50
Second premium, Jennie H. Droke, Gallaudet, Ind	75
Kisses, Mrs. W. B. Flick, Lawrence, Ind	1 50
Second premium, Maude Bryson, Indianapolis, Ind	75
Meringues, Mrs. J. B. Powers, Indianapolis, Ind	1 50
Second premium, Maude Bryson, Indianapolis, Ind	75
Cheese straws, Fannie E. Murray, Indianapolis, Ind	1 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind	50
Apple pie, Mrs. Wm. Welch, Indianapolis, Ind	1 00
Second premium, Jennie H. Droke, Gallaudet, Ind	50
Peach pie, Jennie H. Droke, Gallaudet, Ind	1 00
Second premium, Maude Bryson, Indianapolis, Ind	50
Lemon pie, Alice V. Hatton, Indianapolis, Ind	1 00
Second premium, Mrs. Frank P. Johnson, Howlands, Ind	50
Sugar pie, Mrs. N. A. Ford, Indianapolis, Ind	1 00
Second premium, Maude Bryson, Indianapolis, Ind	50
Pumpkin pie, Jennie H. Droke, Gallaudet, Ind	1 00
Second premium, Mrs. J. B. Powers, Indianapolis, Ind	50
Cherry pie, Alice V. Hatton, Indianapolis, Ind	1 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind	50
Plum pie, Jennie H. Droke, Gallaudet, Ind	1 00
Second premium, Mrs. N. A. Ford, Indianapolis, Ind	50
Saratoga chips, Mrs. N. A. Ford, Indianapolis, Ind	1 00
Second premium, Mrs. F. C. Stewart, Indianapolis, Ind	50
Spiced peaches, Mrs. Frank Wood, Indianapolis, Ind	1 00
Second premium, Mrs. Bettie Clore, Franklin, Ind	50
Spiced pears, Jennie H. Droke, Gallaudet, Ind	1 00
Second premium, Mrs. Frank Wood, Indianapolis, Ind	50
Spiced cherries, Mrs. Bettie Clore, Franklin, Ind	1 00
Second premium, H. M. Stout, Trafalgar, Ind	50
Sweet pickles, collection, Mrs. Bettie Clore, Franklin, Ind	4 00
Second premium, Mrs. V. L. Wilson, Connersville, Ind	2 00
Pickles, mixed, Jennie H. Droke, Gallaudet, Ind	1 00
Second premium, B. F. Whaley, Shelbyville, Ind	75
Pickles, cucumber, Mrs. W. B. Flick, Lawrence, Ind	1 50
Second premium, Jennie H. Droke, Gallaudet, Ind	1 50
Peach pickles, Mrs. Bettie Clore, Franklin, Ind	1 50
Second premium, B. F. Whaley, Shelbyville, Ind	75
Pear pickles, Mrs. V. L. Wilson, Connersville, Ind	1 50
Second premium, Mrs. Bettie Clore, Franklin, Ind	75
Tomato catsup, Mrs. Bettie Clore, Franklin, Ind	1 00
Second premium, B. F. Whaley, Shelbyville, Ind	50

Cucumber catsup, Mrs. W. B. Flick, Lawrence, Ind	1 00
Second premium, Mrs. Bettie Clore, Franklin, Ind	50
Chili sauce, Mrs. W. B. Flick, Lawrence, Ind	1 00
Second premium, Mrs. Bettie Clore, Franklin, Ind	50
Boston baked beans, Mrs. Frank Wood, Indianapolis, Ind	1 00
Second premium, Mrs. F. C. Stewart, Indianapolis, Ind	50
Collection French candies, home-made, Fannie E. Murray, Indianapolis, Ind	1 50
Second premium, Mrs. N. A. Ford, Indianapolis, Ind	75
Jellies, collection, Jennie H. Droke, Gallaudet, Ind	3 00
Second premium, Mrs. V. L. Wilson, Connersville, Ind	2 00
Preserves, collection, Mrs. V. L. Wilson, Connersville, Ind	3 00
Second premium, Jennie H. Droke, Gallaudet, Ind	2 00
Fruit butters, Mrs. Bettie Clore, Franklin, Ind	4 00
Second premium, Mrs. V. L. Wilson, Connersville, Ind	2 00
Canned fruit, collection, Jennie H. Droke, Gallaudet, Ind	6 00
Second premium, H. M. Stout, Trafalgar, Ind	4 00

PROFESSIONAL COOKING.

Best collection of cakes, Mrs. Frank Wood, Indianapolis, Ind	2 50
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind	1 25
Best collection of candies, Mrs. J. B. Powers, Indianapolis, Ind	2 00
Second premium, Maude Bryson, Indianapolis, Ind	1 00
Fanciest gelatine dessert, Maude Bryson, Indianapolis, Ind	2 00
Second premium, Mrs. J. B. Powers, Indianapolis, Ind	1 00
Fancy bread for evening refreshments, Mrs. J. B. Powers, Indianapolis, Ind	1 50
Second premium, Maude Bryson, Indianapolis, Ind	75
Fancy dessert for evening refreshments, Mrs. J. B. Powers, Indianapolis, Ind	1 00
Second premium, Maude Bryson, Indianapolis, Ind	50
Fancy relish for evening refreshments, Mrs. J. B. Powers, Indianapolis Ind	1 00
Second premium, Maude Bryson, Indianapolis, Ind	50

ART.

CLASS 62. KNITTING AND CROCHET WORK.

(Margaret J. Craighead, Judge, Muncie, Ind.)

Infant's shirt, Mary J. Lynch, Kokomo, Ind	$1 00
Second premium, Mrs. Luella Howell, Greensburg, Ind	75
Infant's socks, display, M. M. Ramsey, Indianapolis, Ind	1 00

Second premium, Mrs. C. Dille, Greensburg, Ind	75
Pair silk mittens, hand knit, Miss Ann Miller, Quincy, Ill	1 50
Second premium, Mrs. C. Dille, Greensburg, Ind	75
Pair silk stockings, hand knit, Mrs. L. E. Rockwell, Quincy, Ill	2 00
Second premium, Mrs. C. C. Burns, Geensburg, Ind	1 00
Infant's crochet sack, Mary J. Lynch, Kokomo, Ind	1 00
Second premium, M. M. Ramsey, Indianapolis, Ind	75
Couch cover, Mrs. Cornelia Allen, Indianapolis, Ind	2 00
Second premium, Mary J. Lynch, Kokomo, Ind	1 00
Crochet skirt, Mrs. L. E. Rockwell, Quincy, Ill	2 00
Second premium, M. M. Ramsey, Indianapolis, Ind	1 00
Silk purse, Mrs. C. Dille, Greensburg, Ind	1 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind	50
Infant's silk cap, Mrs. L. E. Rockwell, Quincy, Ill	1 50
Second premium, Mrs. L. A. Moore, Terre Haute, Ind	75
Lady's shawl, knit, Miss Fannie Miner, Indianapolis, Ind	1 50
Second premium, Mary J. Lynch, Kokomo, Ind	75
Lady's shawl, crochet, Mrs. L. K. Brown, Indianapolis, Ind	1 50
Second premium, Mrs. C. W. Vance, Paris, Ill	75
Crochet slippers, M. M. Ramsey, Indianapolis, Ind	1 50
Second premium, Mary J. Lynch, Kokomo, Ind	75

CLASS 63. LACE. HAND MADE.

(Margaret J. Craighead, Judge, Marion, Ind.)

Lace, Battenberg, Mrs. L. A. Moore, Terre Haute, Ind	$1 50
Second premium, Mrs. C. C. Burns, Greensburg, Ind	1 00
Lace, Point, Miss Fannie Miner, Indianapolis, Ind	2 00
Second premium, Helen N. Goodwin, New Castle, Ind	1 00
Lace, Duchess, Mrs. Mary R. Garver, Indianapolis, Ind	1 50
Second premium, Mrs. John T. Holtzman, Indianapolis, Ind	1 00
Lace, Honiton, Mrs. C. Dille, Greensburg, Ind	1 50
Second premium, Mrs. C. C. Burns, Greensburg, Ind	1 00
Lace, Bruges, M. M. Ramsey, Indianapolis, Ind	1 50
Lace, Applique, Miss Fannie Miner, Indianapolis, Ind	1 50
Second premium, Mrs. C. Dille, Greensburg, Ind	1 00
Lace dresser scarf, Mrs. C. C. Burns, Greensburg, Ind	1 50
Second premium, Mrs. C. W. Vance, Paris, Ill	1 00
Lace table cover, Mrs. C. Dille, Greensburg, Ind	1 50
Second premium, Mrs. C. C. Burns, Greensburg, Ind	1 00
Lace center piece, Mrs. C. C. Burns, Greensburg, Ind	1 00
Second premium, Mrs. Luella Howell, Greensburg, Ind	75
Lace sideboard scarf, Mrs. C. C. Burns, Greensburg, Ind	1 00
Second premium, Mrs. C. Dille, Greensburg, Ind	75

Lace collar, Mrs. Chas. F. Kramer, Indianapolis, Ind	1 50
Second premium, Mrs. C. W. Vance, Paris, Ill	1 00
Lace handkerchief, Mrs. L. E. Rockwell, Quincy, Ill	1 00
Second premium, Flora V. Greenstreet, Indianapolis, Ind	75
Best article not mentioned in this class, Miss Fannie Miner, Indianapolis, Ind	1 50
Second premium, Mrs. C. C. Burns, Greensburg, Ind	1 00
Best display of laces, Mrs. C. W. Vance, Paris, Ill	4 00
Second premium, Mrs. M. O. Walker, Malott Park, Ind	2 00

CLASS 64. EMBROIDERY. HAND MADE.

(Margaret J. Craighead, Judge, Muncie, Ind.)

Delft, Mrs. L. A. Moore, Terre Haute, Ind	$2 00
Second premium, Mrs. C. W. Vance, Paris, Ill	1 00
Jewel, Mrs. R. H. Talbutt, Lexington, Ky	2 00
Second premium, M. M. Ramsey, Indianapolis, Ind	1 00
Cotton, Mrs. H. D. Field, Greensburg, Ind	2 00
Second premium, Mrs. C. W. Vance, Paris, Ill	1 00
Kensington, Mrs. C. W. Vance, Paris, Ill	2 00
Second premium, Mrs. R. H. Talbutt, Lexington, Ky	1 00
Arabian, second premium, Mrs. C. C. Burns, Greensburg, Ind	1 00
Rococo, Mrs. L. A. Moore, Terre Haute, Ind	2 00
Mount melich, Mrs. R. H. Talbutt, Lexington, Ky	2 00
Second premium, Mary J. Lynch, Kokomo, Ind	1 00
Tappissery or flat stitch, Mrs. L. E. Rockwell, Quincy, Ill	2 00
Second premium, M. M. Ramsey, Indianapolis, Ind	1 00
Rope silk, Mrs. C. W. Vance, Paris, Ill	2 00
Second premium, Mary J. Lynch, Kokomo, Ind	1 00
Roman, Mrs. Luella Howell, Greensburg, Ind	2 00
Second premium, Mrs. L. E. Rockwell, Quincy, Ill	1 00
Embroidery on bolting cloth, Mrs. L. A. Moore, Terre Haute, Ind	2 00
Second premium, Mrs. C. Dille, Greensburg, Ind	1 00
Embroidery on chamois, Mary J. Lynch, Kokomo, Ind	2 00
Second premium, Amelia Orndorff, Indianapolis, Ind	1 00
Queen Anne darning, Mary J. Lynch, Kokomo, Ind	2 00
Second premium, Mary J. Lynch, Kokomo, Ind	2 00
Second premium, Mrs. H. D. Field, Greensburg, Ind	1 00
Decore, Mrs. C. W. Vance, Paris, Ill	1 50
Second premium, Mary J. Lynch, Kokomo, Ind	75
Lunch set, Mrs. L. A. Moore, Terre Haute, Ind	3 00
Second premium, Mrs. L. E. Rockwell, Quincy, Ill	2 00
Doily set, Mrs. R. H. Talbutt, Lexington, Ky	2 00
Second premium, Mrs. C. W. Vance, Paris, Ill	1 00

Linen tablecloth and six napkins, Mrs. C. Dille, Greensburg, Ind	4 00
Second premium, Mrs. H. D. Field, Greensburg, Ind	3 00
Hostess cloth, Mrs. C. W. Vance, Paris, Ill	2 00
Second premium, Mrs. L. A. Moore, Terre Haute, Ind	1 00
Tray cloth, Mrs. R. H. Talbutt, Lexington, Ky	1 50
Second premium, Mrs. C. Dille, Greensburg, Ind	75
Skirt, silk embroidery, Mrs. L. E. Rockwell, Quincy, Ill	2 00
Second premium, Mrs. C. Dille, Greensburg, Ind	1 00
Infant's shawl, silk embroidery, Miss Ann Miller, Quincy, Ill	2 00
Second premium, M. M. Ramsey, Indianapolis, Ind	1 00
Infant's cap, silk embroidery, Mrs. C. Dille, Greensburg, Ind	1 50
Sideboard scarf, Mrs. R. H. Talbutt, Lexington, Ky	2 00
Second premium, M. M. Ramsey, Indianapolis, Ind	1 00
Dresser furnishings, four pieces, Mrs. C. W. Vance, Paris, Ill	2 00
Second premium, Mrs. Guy Stayman, Indianapolis, Ind	1 00
Couch pillow, Mrs. C. W. Vance, Paris, Ill	2 00
Second premium, Mrs. Cornelia K. Allen, Indianapolis, Ind	1 00
Toilet cushion, new style, M. M. Ramsey, Indianapolis, Ind	3 00
Second premium, Mrs. F. C. Stewart, Indianapolis, Ind	2 00
Table cover, Mrs. C. W. Vance, Paris, Ill	3 00
Second premium, Miss D. Benson, Indianapolis, Ind	2 00
Table center, embroidered, Mrs. R. H. Talbutt, Lexington, Ky	2 00
Second premium, Mrs. C. W. Vance, Paris, Ill	1 00
Picture frame, embroidered, Mrs. C. W. Vance, Paris, Ill	1 50
Second premium, Mrs. Guy Stayman, Indianapolis, Ind	75
Bulgarian work, M. M. Ramsey, Indianapolis, Ind	1 50
Second premium, Mrs. C. Dille, Greensburg, Ind	75
College pillow, M. M. Ramsey, Indianapolis, Ind	2 00
Second premium, Miss Winifred Austin, Crawfordsville, Ind	1 00
Best specimen not mentioned in this class, Mrs. C. W. Vance, Paris, Ill	1 50
Second premium, Mrs. R. H. Talbutt, Lexington, Ky	1 00

CLASS 65. SEWING. MACHINE AND HAND.

(Margaret J. Craighead, Judge, Muncie, Ind.)

MACHINE WORK.

Display of ladies' underwear, Miss Ann Miller, Quincy, Ill	$3 00
Second premium, Mrs. H. D. Field, Greensburg, Ind	1 50
Hemstitching, machine, Mrs. C. W. Vance, Paris, Ill	1 50
Best of any article, Mrs. C. C. Burns, Greensburg, Ind	2 00
Second premium, Mrs. L. E. Rockwell, Quincy, Ill	1 00

HAND WORK.

Hemstitching, specimen, Mrs. C. Dille, Greensburg, Ind	2 00
Second premium, Miss D. Benson, Indianapolis, Ind	1 00
Hemstitching, silk, not handkerchief, Mrs. C. Dille, Greensburg, Ind	2 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind	1 00
Hemstitching, linen, not handkerchief, Mrs. C. Dille, Greensburg, Ind	2 00
Second premium, Mrs. H. D. Field, Greensburg, Ind	1 00
Drawn work, Mexican, Mrs. L. E. Rockwell, Quincy, Ill	2 00
Second premium, Mrs. Willis Fugate, Indianapolis, Ind	1 00
Infant's outfit, complete, most sensible and neat, Mrs. C. Dille, Greensburg, Ind	4 00
Second premium, Mrs. H. D. Field, Greensburg, Ind	2 00

CLASS 66. LADIES' FANCY WORK.

(Margaret J. Craighead, Judge, Muncie, Ind.)

Couch pillow, most sensible, Mrs. John T. Holtzman, Indianapolis, Ind	$1 50
Second premium, M. M. Ramsey, Indianapolis, Ind	75
Infant's nursery basket, Mrs. Frank Wood, Indianapolis, Ind	2 00
Second premium, Mrs. C. Dille, Greensburg, Ind	1 00
Book cover, linen, Mary J. Lynch, Kokomo, Ind	1 50
Second premium, Mrs. Guy Stayman, Indianapolis, Ind	75
Lunch set, Mrs. C. Dille, Greensburg, Ind	1 00
Doilies, not embroidered, Mrs. C. W. Vance, Paris, Ill	1 50
Second premium, Mrs. H. D. Field, Greensburg, Ind	75
Fancy apron, Mrs. L. E. Rockwell, Quincy, Ill	1 50
Second premium, Mrs. C. Dille, Greensburg, Ind	75
Kitchen apron, most practical, Mary J. Lynch, Kokomo, Ind	1 50
Second premium, Mrs. Guy Stayman, Indianapolis, Ind	75
Table cover, not embroidered, Mrs. C. C. Burns, Greensburg, Ind	1 50
Second premium, Mrs. Luella Howell, Greensburg, Ind	75
Table center, not embroidered, Mrs. C. W. Vance, Paris, Ill	1 50
Second premium, Mary J. Lynch, Kokomo, Ind	75
Fancy opera bag, Mary J. Lynch, Kokomo, Ind	1 50
Second premium, Amelia L. Orndorff, Indianapolis, Ind	75
Laundry bag, Mary J. Lynch, Kokomo, Ind	1 50
Second premium, Mrs. C. W. Vance, Paris, Ill	75
Quilt, silk, needle work, Miss Ann Miller, Quincy, Ill	3 00
Second premium, Mrs. C. F. Palmer, Indianapolis, Ind	1 00
Rag carpet, Mrs. L. E. Rockwell, Quincy, Ill	2 00

CLASS 67. FOR AMATEURS EXCLUSIVELY.

(Mrs. Chas. E. Luring, Judge, Indianapolis, Ind.)

Best display pictures, 3½x3½, H. P. Dahlen, Terre Haute, Ind	$3 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	2 00
Best display pictures, 3¼x4¼, Benj. W. Douglass, Indianapolis, Ind.	3 00
Second premium, H. P. Dahlen, Terre Haute, Ind	2 00
Best display pictures, 4x5, Minnie B. Akass, Lake Bluff, Ill	3 00
Second premium, Miss Nellie Coutant, Crawfordsville, Ind	2 00
Best display pictures, 4¼x4¼, Miss Nellie Coutant, Crawfordsville, Ind	3 00
Second premium, H. P. Dahlen, Crawfordsville, Ind	2 00
Best display pictures, 5x7, Miss Nellie Coutant, Crawfordsville, Ind.	3 00
Second premium, H. P. Dahlen, Terre Haute, Ind	2 00
Best display pictures, 6½x8½, Miss Nellie Coutant, Crawfordsville, Ind	3 00
Best specimen, 3½x3½, Miss Nellie Coutant, Crawfordsville, Ind	1 50
Second premium, Minnie B. Akass, Lake Bluff, Ill	75
Best specimen, 3¼x4¼, Minnie B. Akass, Lake Bluff, Ill	1 50
Second premium, H. P. Dahlen, Terre Haute, Ind	75
Best specimen, 4x5, Miss Nellie Coutant, Crawfordsville, Ind	1 50
Second premium, H. P. Dahlen, Terre Haute, Ind	75
Best specimen, 4¼x4¼, Miss Nellie Coutant, Crawfordsville, Ind	1 50
Second premium, H. P. Dahlen, Terre Haute, Ind	75
Best specimen, 5x7, Miss Nellie Coutant, Crawfordsville, Ind	1 50
Second premium, Mrs. C. W. Vance, Paris, Ill	75
Best specimen, 6½x8½, Benj. W. Douglass, Indianapolis, Ind	1 50
Second premium, Miss Nellie Coutant, Crawfordsville, Ind	75

CLASS 68. DECORATIVE ART WORK.

(Mrs. Chas. E. Luring, Judge, Indianapolis, Ind.)

Wood carving, specimen, Mrs. G. E. Brittain, Dayton, Ohio	$4 00
Second premium, Helen M. Goodwin, New Castle, Ind	2 00
Tapestry painting, Mrs. Wm. Welch, Indianapolis, Ind	6 00
Second premium, Helen M. Goodwin, New Castle, Ind	4 00
Pyrography specimen, leather, Edna Gilmore, Broad Ripple, Ind	2 00
Second premium, Helen M. Goodwin, New Castle, Ind	1 00
Pyrography specimen, wood, Mrs. Minnie S. Wilcox, Indianapolis, Ind	2 00
Pyrography display, Edna Gilmore, Broad Ripple, Ind	3 00
Second premium, Mrs. C. E. Law, Terre Haute, Ind	1 50
Pyrography portrait from life, Minnie B. Akass, Lake Bluff, Ill	3 00
Second premium, L. A. Wilson, Indianapolis, Ind	1 50

Pyrography Indian work, L. A. Wilson, Indianapolis, Ind	2 00
Second premium, Amelia L. Orndorff, Indianapolis, Ind	1 00

CLASS 69. PAINTINGS AND DRAWINGS. AMATEUR.

(Mrs. Chas. E. Luring, Judge, Indianapolis, Ind.)

Portrait in oil, from life, Minnie B. Akass, Lake Bluff, Ill	$6 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	3 00
Portrait in crayon, from life, Minnie B. Akass, Lake Bluff, Ill	4 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	2 00
Portrait in pastel, from life, Minnie B. Akass, Lake Bluff, Ill	4 00
Portrait in water colors, from life, Minnie B. Akass, Lake Bluff, Ill.	5 00
Second premium, Mrs. Geo. K. Wainwright, Benton Harbor, Mich	2 50
Ideal head in oil, Mrs. Chas. N. Hunter, Springfield, Ohio	3 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 50
Ideal head in crayon, Miss F. H. Frank, Des Moines, Ia	2 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 50
Ideal head in water colors, Miss F. H. Frank, Des Moines, Ia	2 00
Second premium, Winifred Austin, Crawfordsville, Ind	1 00
Ideal head in pastel, Minnie B. Akass, Lake Bluff, Ill	2 00
Second premium, Miss F. H. Frank, Des Moines, Ia	1 00
Group figure in oil, Minnie B. Akass, Lake Bluff, Ill	1 50
Ideal figure in crayon, Miss F. H. Frank, Des Moines, Ia	2 00
Second premium, Maude Myers, Franklin, Ohio	1 00
Group figure in water colors, Minnie B. Akass, Lake Bluff, Ill	2 00
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio	1 00
Specimen, flowers in oil, Mrs. Geo. K. Wainwright, Benton Harbor, Mich	1 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Display, flowers in oil, Maude Myers, Franklin, Ohio	2 50
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Specimen, flowers in water colors, Miss F. H. Frank, Des Moines, Ia	2 00
Second premium, Mrs. J. N. Chamberlain, Beloit, Wis	1 00
Specimen, fruit in oil, Winifred Austin, Crawfordsville, Ind	2 50
Second premium, Maude Myers, Franklin, Ohio	1 00
Specimen, fruit in water colors, Maude Myers, Franklin, Ohio	2 00
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio	1 00
Specimen, vegetable in oil, Miss F. H. Frank, Des Moines, Ia	2 50
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Specimen, vegetable in water colors, Mrs. G. E. Brittain, Dayton, Ohio	2 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Display, fruit or vegetable in oil, Minnie B. Akass, Lake Bulff, Ill.	4 50

Second premium, Maude Myers, Franklin, Ohio	2 00
Display, fruit or vegetable in water colors, Mrs. Chas. N. Hunter, Springfield, Ohio	4 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	2 00
Specimen, animal in oil, Minnie B. Akass, Lake Bluff, Ill	2 50
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio	1 00
Specimen, animal in water colors, Minnie B. Akass, Lake Bluff, Ill.	2 00
Second premium, Mrs. J. N. Chamberlain, Beloit, Wis	1 00
Specimen, game in oil, Daisy C. Altland, Indianapolis, Ind	2 50
Second premium, Mrs. Geo. K. Wainwright, Benton Harbor, Mich.	1 00
Specimen, game in water colors, Miss F. H. Frank, Des Moines, Ia.	2 00
Specimen, still life in oil, Winifred Austin, Crawfordsville, Ind	2 50
Second premium, Winifred Austin, Crawfordsville, Ind	1 00
Specimen, still life in water colors, Mrs. Chas. N. Hunter, Springfield, Ohio	2 00
Second premium, Mrs. Geo. K. Wainwright, Benton Harbor, Mich.	1 00
Specimen, landscape in oil, Mrs. G. E. Brittain, Dayton, Ohio	2 50
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Specimen, landscape in water colors, Miss F. H. Frank, Des Moines, Ia	2 00
Second premium, Francis Abraham, Crawfordsville, Ind	1 00
Display, landscape paintings, Minnie B. Akass, Lake Bluff, Ill	8 00
Second premium, Mrs. G. E. Brittain, Dayton, Ohio	4 00
Summer scene in oil, Miss F. H. Frank, Des Moines, Ia	2 50
Second premium, Francis Abraham, Crawfordsville, Ind	1 00
Summer scene in water colors, Mrs. Geo. K. Wainwright, Benton Harbor, Mich	2 00
Second premium, Miss F. H. Frank, Des Moines, Ia	1 00
Autumn scene in oil, Francis Abraham, Crawfordsville, Ind	2 50
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Autumn scene in water colors, Miss F. H. Frank, Des Moines, Ia.	2 00
Second premium, Olive Newlin, Plainfield, Ind	1 00
Winter scene in oil, Miss F. H. Frank, Des Moines, Ia	2 50
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Winter scene in water colors, Mrs. Chas. N. Hunter, Springfield, O.	2 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 00
Marine scene in oil, Minnie B. Akass, Lake Bluff, Ill	2 50
Second premium, Maude Myers, Franklin, Ohio	1 00
Marine scene, water colors, Miss F. H. Frank, Des Moines, Ia	2 00
Second premium, Mrs. Geo. K. Wainwright, Benton Harbor, Mich.	1 00
Interior scene, oil, Francis Abraham, Crawfordsville, Ind	3 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	1 50
Interior scene, water colors, Minnie B. Akass, Lake Bluff, Ill	2 00
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio	1 00
Specimen, pencil drawing, Minnie B. Akass, Lake Bluff, Ill	1 00

Second premium, Winifred Austin, Crawfordsville, Ind.	75
Specimen, pen and ink sketch, Winifred Austin, Crawfordsville, Ind.	1 00
Second premium, Minnie B. Akass, Lake Bluff, Ill.	75
Display, pen and ink sketch, Winifred Austin, Crawfordsville, Ind.	4 00
Second premium, Miss F. H. Frank, Des Moines, Ia.	2 00
Drawing, mechanical, Miss F. H. Frank, Des Moines, Ia.	2 00
Second premium, L. L. Ingraham, Indianapolis, Ind.	1 00
Display, water colors, Minnie B. Akass, Lake Bluff, Ill.	4 00
Second premium, Miss F. H. Frank, Des Moines, Ia.	2 00
Best display of pastels, Minnie B. Akass, Lake Bluff, Ill.	4 00
Best entire exhibit paintings and drawings, Minnie B. Akass, Lake Bluff, Ill.	10 00

CLASS 70. PAINTINGS AND DRAWINGS.

(Mrs. Charles E. Luring, Judge, Indianapolis, Ind.)

Portrait in oil, made in past two years, Minnie B. Akass, Lake Bluff, Ill.	$15 00
Second premium, Helen M. Goodwin, New Castle, Ind.	8 00
Portrait in water colors, E. M. Ingraham, Indianapolis, Ind.	10 00
Second premium, Minnie B. Akass, Lake Bluff, Ill.	5 00
Portrait in crayon, Minnie B. Akass, Lake Bluff, Ill.	6 00
Second premium, Mrs. Orris Pratt, Spring Prairie, Wis.	3 00
Portrait in pastel, Minnie B. Akass, Lake Bluff, Ill.	10 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind.	5 00
Ideal head in oil, Minnie B. Akass, Lake Bluff, Ill.	6 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind.	3 00
Ideal head in water colors, Mathias Alten, Grand Rapids, Mich.	4 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind.	2 00
Ideal figure in oil, Helen M. Goodwin, New Castle, Ind.	6 00
Second premium, Helen M. Goodwin, New Castle, Ind.	3 00
Group figure in oil, Helen M. Goodwin, New Castle, Ind.	5 00
Second premium, Helen M. Goodwin, New Castle, Ind.	2 50
Ideal figure in water colors, Helen M. Goodwin, New Castle, Ind.	4 00
Second premium, Mathias Alten, Grand Rapids, Mich.	2 00
Group figure in water colors, Mrs. John O. Spahr, Indianapolis, Ind.	4 00
Second premium, Mathias Alten, Grand Rapids, Mich.	2 00
Specimen, flowers in oil, Minnie B. Akass, Lake Bluff, Ill.	4 00
Second premium, Mrs. C. F. Palmer, Indianapolis, Ind.	2 00
Display, flowers in oil, Mrs. Oris Pratt, Spring Prairie, Wis.	6 00
Second premium, Minnie B. Akass, Lake Bluff, Ill.	3 00
Specimen, flowers in water colors, L. A. Wilson, Indianapolis, Ind.	3 50
Second premium, Mrs. Oris Pratt, Spring Prairie, Wis.	2 00
Display, flowers in water colors, Mrs. C. F. Palmer, Indianapolis, Ind.	5 00

Second premium, Mrs. Oris Pratt, Spring Prairie, Wis	3 00
Specimen, fruit in oil, Mrs. C. F. Palmer, Indianapolis, Ind	4 00
Second premium, Mrs. Oris Pratt, Spring Prairie, Wis	2 00
Best original specimen, Mrs. Oris Pratt, Spring Prairie, Wis	4 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind	2 00
Specimen, fruit in water colors, Mathias Alten, Grand Rapids, Mich.	3 50
Second premium, Mrs. W. R. Galpin, Indianapolis, Ind	2 00
Specimen, vegetable in oil, Minnie B. Akass, Lake Bluff, Ill	4 00
Second premium, Helen M. Goodwin, New Castle, Ind	2 00
Specimen, vegetable in water colors, Mathias Alten, Grand Rapids, Mich.	3 50
Second premium, Mrs. Oris Pratt, Spring Prairie, Wis	2 00
Display, fruit or vegetable in oil, Mrs. Oris Pratt, Spring Prairie, Wis.	6 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind	3 00
Display, fruit or vegetable in water colors, Mathias Alten, Grand Rapids, Mich.	5 00
Second premium, Helen M. Goodwin, New Castle, Ind	3 00
Animal in oil, Mathias Alten, Grand Rapids, Mich	4 00
Second premium, Minnie B. Akass, Lake Bluff, Ill	2 00
Animal in water colors, Mathias Alten, Grand Rapids, Mich	3 50
Second premium, Helen M. Goodwin, New Castle, Ind	2 00
Game, oil, Mrs. C. F. Palmer, Indianapolis, Ind	4 00
Second premium, Amelia L. Orndorff, Indianapolis, Ind	2 00
Game, water colors, Mrs. W. R. Galpin, Indianapolis, Ind	3 50
Second premium, Minnie B. Akass, Lake Bluff, Ill	2 00
Still life, in oil, Mathias Alten, Grand Rapids, Mich	4 00
Second premium, L. A. Wilson, Indianapolis, Ind	2 00
Still life, in water colors, Mrs. Oris Pratt, Spring Prairie, Wis	3 50
Second premium, Helen M. Goodwin, New Castle, Ind	2 00
Specimen, landscape in oil, Mrs. C. F. Palmer, Indianapolis, Ind	4 00
Second premium, Fred Vance, Crawfordsville, Ind	2 00
Specimen, landscape in water colors, Mathias Alten, Grand Rapids, Mich.	3 50
Second premium, Mrs. C. F. Palmer, Indianapolis, Ind	2 00
Display landscape paintings, Minnie B. Akass, Lake Bluff, Ill	6 00
Second premium, E. M. Ingraham, Indianapolis, Ind	3 00
Interior scene, oil, Minnie B. Akass, Lake Bluff, Ill	4 50
Second premium, Mrs. C. F. Palmer, Indianapolis, Ind	2 00
Interior scene, water colors, Minnie B. Akass, Lake Bluff, Ill	4 50
Second premium, Helen M. Goodwin, New Castle, Ind	2 00
Drawing, from antique head, Mrs. John O. Spahr, Indianapolis, Ind.	4 00
Second premium, Helen M. Goodwin, New Castle, Ind	2 00
Drawing, from antique, figure, Mrs. John O. Spahr, Indianapolis, Ind.	4 00

Drawing, animal, Mrs. John O. Spahr, Indianapolis, Ind.	4 00
Second premium, Minnie B. Akass, Lake Bluff, Ill.	2 00
Drawing, architectural, Helen M. Goodwin, New Castle, Ind.	4 00
Drawing, mechanical, Helen M. Goodwin, New Castle, Ind.	4 00
Pen and ink drawing, Minnie B. Akass, Lake Bluff, Ill.	2 00
Second premium, Mathias Alten, Grand Rapids, Mich.	1 00
Charcoal drawing from life, Minnie B. Akass, Lake Bluff, Ill.	3 00
Second premium, Fred Vance, Crawfordsville, Ind.	2 00
Best display of pastels, Mrs. John O. Spahr, Indianapolis, Ind.	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.	2 00
Best display of crayons, Minnie B. Akass, Lake Bluff, Ill.	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.	2 00
Best entire exhibit paintings and drawings, Minnie B. Akass, Lake Bluff, Ill.	12 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind.	6 00
Best display of water colors, Minnie B. Akass, Lake Bluff, Ill.	4 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind.	2 00

CLASS 71. CHINA. AMATEUR.

(Mrs. Charles E. Luring, Judge, Indianapolis, Ind.)

Painting on china, Dresden, specimen, Mrs. Mary R. Garver, Indianapolis, Ind.	$2 00
Second premium, Flora V. Greenstreet, Indianapolis, Ind.	1 00
Painting on china, Persian, specimen, Mrs. Guy Stayman, Indianapolis, Ind.	2 00
Second premium, Mrs. Mary R. Garver, Indianapolis, Ind.	1 00
Painting on china, relief work, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Second premium, Mrs. H. L. Clark, Indianapolis, Ind.	1 00
Painting on china, enamel, Mrs. Guy Stayman, Indianapolis, Ind.	2 00
Second premium, Mrs. H. L. Clark, Indianapolis, Ind.	1 00
Painting on china, colored gold, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Second premium, Flora V. Greenstreet, Indianapolis, Ind.	1 00
Painting on china, lustre, Mrs. G. E. Brittain, Dayton, Ohio.	2 00
Second premium, Mrs. C. E. Law, Terre Haute, Ind.	1 00
Painting on china, dusted tinting, Mrs. Mary R. Garver, Indianapolis, Ind.	2 00
Second premium, Mrs. F. E. Wolcott, Indianapolis, Ind.	1 00
Painting on china, punch bowl and six cups, flowers, Mrs. F. E. Wolcott, Indianapolis	6 00
Painting on china, punch bowl and six cups, fruits, Mrs. H. L. Clark, Indianapolis	6 00

Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Painting on china, tankard and six cups, flowers, Mrs. Willis Fugate, Indianapolis	6 00
Painting on china, tankard and six cups, fruit, Gertrude Mellville, Indianapolis.	6 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Painting on china, claret pitcher, Mrs. Mary R. Garver, Indianapolis, Ind.	4 00
Second premium, Mrs. F. E. Wolcott, Indianapolis, Ind.	2 00
Painting on china, jardiniere, Mrs. Willis Fugate, Indianapolis, Ind.	4 00
Second premium, Gertrude Melville, Indianapolis, Ind.	2 00
Painting on china, fruit set, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Second premium, Mrs. Willis Fugate, Indianapolis, Ind.	2 00
Painting on china, chocolate set, Mrs. Mary R. Garver, Indianapolis, Ind.	4 00
Second premium, Mrs. Willis Fugate, Indianapolis, Ind.	2 00
Painting on china, salad set, Daisy C. Altland, Indianapolis, Ind.	4 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Painting on china, tea set, Mrs. Mary R. Garver, Indianapolis, Ind.	4 00
Second premium, Gertrude Melville, Indianapolis, Ind.	2 00
Painting on china, soup set, Mrs. Guy Stayman, Indianapolis, Ind.	4 00
Second premium, Mrs. H. L. Clark, Indianapolis, Ind.	2 00
Painting on china, pudding set, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Second premium, Mrs. H. L. Clark, Indianapolis, Ind.	2 00
Painting on china, game set, Mrs. E. P. Thayer, Greenfield, Ind.	6 00
Second premium, Daisy C. Altland, Indianapolis, Ind.	4 00
Painting on china, fish set, Mrs. E. P. Thayer, Greenfield, Ind.	6 00
Second premium, Daisy C. Altland, Indianapolis, Ind.	4 00
Painting on china, library set, Daisy C. Altland, Indianapolis, Ind.	3 00
Second premium, Mrs. Mary R. Garver, Indianapolis, Ind.	2 00
Painting on china, manicure set, Mrs. Mary R. Garver, Indianapolis, Ind.	3 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Painting on china, toilet set, Mrs. E. P. Thayer, Greenfield, Ind.	3 00
Second premium, Mrs. Mary R. Garver, Indianapolis, Ind.	2 00
Painting on china, six plates, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Second premium, Flora V. Greenstreet, Indianapolis, Ind.	2 00
Painting on china, six cups and saucers, Mrs. E. P. Thayer, Greenfield, Ind.	3 00
Second premium, Mrs. Mary R. Garver, Indianapolis, Ind.	2 00
Painting on china, conventional design, Daisy C. Altland, Indianapolis, Ind.	3 00
Second premium, Flora V. Greenstreet, Indianapolis, Ind.	2 00

Painting on china, ideal head, Mrs. John O. Spahr, Indianapolis, Ind.	6 00
Second premium, Mrs. Mary R. Garver, Indianapolis, Ind.	4 00
Painting on china, ideal figure, Mrs. Mary R. Garver, Indianapolis, Ind.	6 00
Second premium, Mrs. John O. Spahr, Indianapolis, Ind.	4 00
Painting on china, portrait, Mrs. John O. Spahr, Indianapolis, Ind.	6 00
Second premium, Mrs. G. E. Brittain, Dayton, Ohio	4 00
Painting on china, three ornamental pieces, Mrs. Chas. F. Kramer, Indianapolis	3 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Painting on china, best original piece, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Second premium, Mrs. Mary R. Garver, Indianapolis, Ind.	1 00
Painting on china, under instruction, Mrs. John O. Spahr, Indianapolis, Ind.	4 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Painting on china, best specimen not mentioned, Flora V. Greenstreet, Indianapolis	3 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Painting on china, table ware display, Mrs. E. P. Thayer, Greenfield, Ind.	6 00
Second premium, Mrs. H. L. Clark, Indianapolis, Ind.	3 00
Painting on china, mush and milk set, Mrs. Mary R. Garver, Indianapolis, Ind.	4 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.	2 00
Painting on china, decorated water pitcher, Flora V. Greenstreet, Indianapolis	3 00
Second premium, Mrs. Guy Stayman, Indianapolis, Ind.	1 50
Painting on china, delph, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Second premium, Mrs. Willis Fugate, Indianapolis, Ind.	2 00
Best entire display china painting, Mrs. E. P. Thayer, Greenfield, Ind.	10 00
Second premium, Mrs. Mary R. Garver, Indianapolis, Ind.	5 00
Painting on glass, mineral colors display, Mrs. E. P. Thayer, Greenfield, Ind.	6 00
Second premium, Mrs. H. L. Clark, Indianapolis, Ind.	3 00

CLASS 72. CHINA.

(Mrs. Charles E. Luring, Judge, Indianapolis, Ind.)

Painting on china, Dresden, specimen, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	$4 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	2 00

Painting on china, Persian, specimen, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	2 00
Painting on china, three ornamental pieces, Florence E. Newcomer, Dayton, Ohio	6 00
Second premium, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	3 00
Painting on china, relief gold, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	2 00
Painting on china, enamel, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	2 00
Painting on china, punch bowl and cups, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	6 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	3 00
Painting on china, game, plaque, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	6 00
Second premium, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	3 00
Jardiniere, Mrs. William Welch, Indianapolis, Ind.	4 00
Second premium, Amelia Orndorff, Indianapolis, Ind.	2 00
Painting on china, claret pitcher and cups, Mrs. Minnie S. Wilcox, Indianapolis	6 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	3 00
Painting on china, chocolate set, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	6 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	3 00
Painting on china, tea set, Mrs. W. S. Day, Indianapolis, Ind.	4 00
Second premium, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	2 00
Painting on china, salad set, Amelia L. Orndorff, Indianapolis, Ind.	4 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	2 00
Painting on china, library set, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	2 00
Painting on china, fruit set, Mrs. W. S. Day, Indianapolis, Ind.	6 00
Second premium, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	3 00
Painting on china, pudding set, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	2 00
Painting on china, soup set, Mrs. Wm. Welch, Indianapolis, Ind.	5 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	2 50
Painting on china, lustre, Mrs. C. F. Palmer, Indianapolis, Ind.	4 00
Second premium, Amelia L. Orndorff, Indianapolis, Ind.	2 00
Painting on china, six plates, Amelia L. Orndorff, Indianapolis, Ind.	4 00
Second premium, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	2 00

China of conventional design, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premum, Amelia L. Orndorff, Indianapolis, Ind.	2 00
Ideal head, china or porcelain, Florence E. Newcomer, Dayton, O.	4 00
Second premium, Amelia L. Orndorff, Indianapolis, Ind.	2 00
Ideal figure, china or porcelain, Amelia L. Orndorff, Indianapolis, Ind.	4 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	2 00
Portrait, china, original design, Florence E. Newcomer, Dayton, O.	4 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	2 00
Painting on china, dusted tinting, Mrs. C. F. Palmer, Indianapolis, Ind.	4 00
Second premium, Amelia L. Orndorff, Indianapolis, Ind.	2 00
Six plâtes, original design, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	2 00
Decorated water pitcher, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	6 00
Second premium, Florence E. Newcomer, Dayton, Ohio	3 00
Painting on china, under instruction, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	6 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	3 00
Painting on china, six cups and saucers, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	6 00
Second premium, Florence E. Newcomer, Dayton, Ohio	3 00
Painting on china, punch cups, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	4 00
Second premium, Mrs. Wm. Welch, Indianapolis, Ind.	2 00
Painting on china, best specimen not mentioned, Mrs. Wm. Welch, Indianapolis, Ind.	4 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	2 00
Painting on china, under glaze, display, Amelia L. Orndorff, Indianapolis, Ind.	6 00
Second premium, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	3 00
Painting on glass, mineral colors, Amelia L. Orndorff, Indianapolis, Ind.	6 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	3 00
Painting on delph, decoration, Mrs. C. F. Palmer, Indianapolis, Ind.	4 00
Second premium, Mrs. Minnie S. Wilcox, Indianapolis	2 00
Best entire display, china painting, Mrs. Minnie S. Wilcox, Indianapolis, Ind.	12 00
Second premium, Mrs. W. S. Day, Indianapolis, Ind.	6 00

The following is a classified list of all exhibits in the machinery department at the Indiana State Fair of 1903:

AUTOMOBILES AND MOTOR CARS.

International Motor Car Company, Indianapolis.
Fisher Automobile Company, Indianapolis.
Earhart Motor Car Company, Indianapolis.

BUGGIES AND CARRIAGES.

Banner Buggy Company, St. Louis, Mo.
Owosso Carriage Company, Owosso, Mich.
Knightstown Buggy Company, Knightstown, Ind.
Harper Buggy Company, Columbia City, Ind.
Decatur Buggy Company, Middletown, Ohio.
Royal Buggy Company, Middletown, Ohio.
Atwood Buggy Company, Albion, Ind.
Mier Carriage and Buggy Company, Ligonier, Ind.
Lincoln Carriage Company, Greensburg, Ind.
Binkley Buggy Company, Tipton, Ind.
Webber Wagon Company, Chicago, Ill.
James & Mayer, Lawrenceburg, Ind.
Wayne Works, Richmond, Ind.
Martinsville Buggy Company, Martinsville, Ind.
Davis & Taylor Carriage Company, Richmond, Ind.
Columbus Buggy Company, Columbus, Ohio.
C. F. Schnoe, Shelbyville, Ind.
Morris Woodhull, Dayton, Ohio.
Lull Carriage Company, Kalamazoo, Mich.
Wayne Sulkyette & Road Cart Company, Decatur, Ill.
Anchor Buggy Company, Cincinnati, Ohio.
Modern Buggy Company, Auburn, Ind.
Haydock Carriage Company.
Butler Carriage Company, Butler, Ind.
Moon Bros. Carriage Company, St. Louis, Mo.
Gates-Osborn Carriage Company, Indianapolis.

FARM WAGONS.

Geneva Metal Wheel Company, Geneva, Ohio.
H. H. Smith & Co., Pekin, Ill.
Ionia Wagon Company, Ionia, Mich.
Frank E. Bright, Lapel, Ind.
Columbia Wagon Company.

FENCE.

Bloomfield Manufacturing Company, Bloomfield, Ind.
Frost Wire Fence Company, Cleveland, Ohio.
Enterprise Foundry and Fence Company, Indianapolis.
Shimer & Co., Anderson, Ind.
Indiana Anchor Fence Company, South Bend, Ind.
Lamb Wire Fence Company, Adrian, Mich.
Bowen Cable Stay Fence Company, Norwalk, Ohio.
Frankfort Iron Fence Works, Frankfort, Ind.
Page Woven Wire Fence Company, Adrian, Mich.
Dwiggins Wire Fence Company, Anderson, Ind.
Whittington Machine and Fence Company, Indianapolis.
F. P. Smith Wire and Iron Company, Chicago, Ill.
Spring Steel Fence and Wire Company, Anderson, Ind.
Eureka Fence Company, Lebanon, Ind.
Anthony Fence Company.
American Steel and Wire Company, Anderson, Ind.

FENCE POSTS.

W. M. Myers, Greenwood, Ind.
L. H. Stoner, Albany, Ind.

FERTILIZERS.

McGowan & Finigan Machine Company, St. Louis, Mo.
Newark Machine Company, Newark, Ohio.
Smith Manure Spreader Company, Chicago, Ill.
Armour Fertilizer Works, Chicago, Ill.
German Kali Works, New York, N. Y.

GAS AND GASOLINE ENGINES.

New Era Iron Works, Dayton, Ohio.
Chas. A. Stickney, St. Paul, Minn.
Neilman Machine Works, Evansville, Ind.
Geiser Manufacturing Company, Indianapolis.
Aultman Company, Canton, Ohio.
Gemmer Manufacturing Company, Marion, Ind.
Frick Company, Waynesboro, Pa.
Lambert Gas and Gasoline Engine Company, Anderson, Ind.
A. D. Baker Company, Swanton, Ohio.
Reliable Machine Company, Anderson, Ind.
U. S. Engine and Pump Company.

GATES.

Manlove Gate Company, Milton, Ind.

AGRICULTURAL IMPLEMENTS.

Stoddard Manufacturing Company, Dayton, Ohio.
Corn King Husker Company, Rochester, Ind.
Keystone Company, Sterling, Ill.
Foos Manufacturing Company, Springfield, Ohio.
Louden Machine Company, Fairfield, Iowa.
Wood Bros., Denison, Iowa.
A. Burch Sons, Elizabethtown, Pa.
Safety Shredder Company, New Castle, Ind.
David Bradley Manufacturing Company, Bradley, Ill.
E. W. Ross Company, Springfield, Ohio.
Winter & Hill, Indianapolis.
Parsons Band Cutter and Self Feeder Company, Newton, Iowa.
Ohio Cultivator Company, Bellevue, Ohio.
Hoosier Drill Company, Richmond, Ind.
L. S. Allen & Co., Philadelphia, Pa.
Rude Bros. Manufacturing Company, Liberty, Ind.
A. C. Evans Manufacturing Company, Springfield, Ohio.
Buckeye Feed Mill Company, Springfield, Ohio.
Indiana Baling Machine Company, Indianapolis.
Hench & Drumgold, York, Pa.
Rosenthal Corn Husker Company, Milwaukee, Wis.
J. R. Hall, Indianapolis.
Whitman Agricultural Company, St. Louis, Mo.
Hartman Manufacturing Company, Vincennes, Ind.
Monarch Feeder & St. Company, Indianapolis.
L. M. Good, Springfield, Ohio.
Jenney Manufacturing Company, Ottumwa, Ia.
Appleton Manufacturing Company, Batavia, Ill.
Rhea-Thilens Implement Company, Lafayette, Ind.
Woodcock Feed Mill Company, Chillicothe, Ohio.
Stowell Manufacturing Company, Milwaukee, Wis.
Hunt, Helm & Ferris Company, Harvard, Ill.
Stover Manufacturing Company, Freeport, Ill.
M. Campbell Fanning Mill Company, Detroit, Mich.
Fooston Wind Stacker Company, Minneapolis, Minn.
D. M. Sechler Carriage Company, Moline, Ill.
Standard Harrow Company, Utica, N. Y.
American Harrow Company, Detroit, Mich.
Ohio Rake Company, Dayton, Ohio.
Parlin & Orndorff Company, Indianapolis.

Johnson Harvester Company.
Minnie Harvester Company.
National Drill Company.
Plano Corn Husker Company.
Poindexter Implement Company.
Thomas Grain Drill Company, Springfield, Ohio.

NEWSPAPER STANDS.

American Thresherman, Madison, Wis.
American Farmer, Indianapolis.
Farmers' Guide, Huntington, Ind.
Farm, Field and Friend, Chicago, Ill.
Lawrence Publishing Company, Cleveland, Ohio.
Indianapolis News, Indianapolis.
Indianapolis Star, Indianapolis.
Indianapolis Journal, Indianapolis.
Indianapolis Sentinel, Indianapolis.
Indiana Farmer, Indianapolis.
Thresherman's Review.
Thresher World and Farm Magazine.

PLOWS.

Heller, Aller & Co., Napoleon, Ohio.
Rock Island Plow Company, Indianapolis.
Eastern Moline Plow Company, Indianapolis.
Bucher, Gibbs Plow Company, Canton, Ohio.
Grand Detour Plow Company, Dixon, Ill.
J. I. Case Plow Works, Racine, Wis.
Wagner Plow Works, Indianapolis.
Sattley Manufacturing Company, Indianapolis.
Hoover Plow Company, Avery, Ohio.
Brown-Manley Plow Company, Indianapolis.
J. C. Porter Company, Indianapolis.
Clipper Plow Company, Defiance, Ohio.
James Manufacturing Company, Janesville, Wis.
Oliver Chilled Plow Works, Indianapolis.
Carnegie Plow and Manufacturing Company, Carnegie, Pa.
South Bend Chilled Plow Company, South Bend, Ind.

PUMPS AND WINDMILLS.

Ft. Wayne Wind Mill Company, Ft. Wayne, Ind.
Flint & Walling Manufacturing Company, Kendallville, Ind.
Rich Pump Company, Cincinnati, Ohio.

Hayes Pump and Planter Company, Galva, Ill.
P. P. Mast & Co., Springfield, Ohio.
Smith Pomeray Wind Mill Company, Kalamazoo, Mich.
Anderson Malleable Iron and Manufacturing Company, Anderson, Ind.

SCALES.

Anderson Computing Scale Company, Anderson, Ind.
McDonald Scale Company.
Fairbanks, Morse & Co., Indianapolis.
Chicago Scale Company, Chicago, Ill.
Fairweight Standard Scale Company, Danville, Ill.

THRESHING MACHINES.

J. I. Case Threshing Machine Company, Indianapolis.
Reeves & Co., Columbus, Ind.
Robinson & Co., Richmond, Ind.
Conde Implement Company, Indianapolis.
Long & Alstetter Company, Hamilton, Ohio.

MISCELLANEOUS.

G. H. Athens & Bro., Indianapolis.
Bosler Grave Vault Company, Indianapolis.
O. T. Boulton, Covington, Ohio.
Perfection Manufacturing Company, Muncie, Ind.
Brown Bros. Manufacturing Company, Nappanee, Ind.
W. S. Shuler, Amsterdam, N. Y.
J. H. Everett, Indianapolis.
L. D. Cooley, Kalamazoo, Mich.
Neer Manufacturing Company.
Indianapolis Tent and Awning Company, Indianapolis.
A. L. Munna, Mechanicsburg, Ohio.
J. C. Miller, Greenwood, Ind.
Mattie M. Shields, Indianapolis.
Desmond Stephen Manufacturing Company, Urbana, Ohio.
Indianapolis Bridge and Iron Works, Indianapolis.
Indiana Oil Tank Line Company, Indianapolis.
Bench Manufacturing Company, Lyons, Mich.
Henry C. Smith, Roofing Company, Indianapolis.
Indiana Road Machine Company, Ft. Wayne, Ind.
American Seeding Machine Company.
American Building Block Company, Indianapolis.
Elwood Bennett, Kokomo, Ind.
Beach Manufacturing Company.

Cutter & Proctor Stove Company.
Champion Evaporator Company.
Coaley Harness Company.
Fish Bros. Manufacturing Company, Clinton, Iowa.
Chas. J. Hunter.
Hummel & Cones, Milwaukee, Wis.
J. A. Hartzell.
W. G. Houk, Crawfordsville, Ind.
Jas. Hines, Indianapolis.
A. L. Johns Company, Ft. Wayne, Ind.
Keystone Farm Company.
J. B. Killion, Washington, Ind.
Laporte Harness Company, Laporte, Ind.
Miller Oil and Supply Company.
R. A. Moony, Muncie, Ind.
McSherry Manufacturing Company, Middletown, Ohio.
Ogborn & Callen.
Pneumatic Elevator and Weigher Company.
Prairie Manufacturing Company.
Piersons Building Material Company.
Roderick Lean Manufacturing Company.
Rusk Evener Company.
Reliable Machine Company.
Schroder Bros., Minier, Ill.
Watson Tank Company.
Weisenborn Manufacturing Company.

REPORT OF PROCEEDINGS

OF

Indiana State Association of Fair Managers,

Held at State House, January 5, 1904.

The meeting was called to order at 1:30 p. m., in Room 12, State House.

President J. J. Insley in the chair, and Secretary W. M. Blackstock present.

President Insley: These meetings are for the benefit of all, and suggestions from anyone on methods that will better our affairs will be acceptable.

PRESIDENT'S ADDRESS.

In the outset of this paper I desire to say that, in my judgment, the managers of fairs are confronted by conditions that have gradually developed through many years, but which must now be met promptly and vigorously, or that erstwhile beneficent institutions will ultimately lapse into a condition described by a once prominent official as one of "innocuous desuetude."

But before entering upon the discussion of this part of my topic, I desire to call attention to the history of fairs generally, and this for reasons which I hope will appear obvious. It is more than probable that their origin antedates any known record; that the ancient Egyptians and the dwellers of the valleys of the Euphrates and the Tigris made use of this means of disseminating a knowledge of agriculture, horticulture and stock breeding. Be that as it may, we are told that the word "fair" is derived from the Latin "feria"—a day of rest, a holiday, which meaning gradually expanded into a gathering for the sale and purchase of goods, the hiring of slaves, etc. We are also told that the ancient Greeks, from whom the Romans derived the custom, held them for the purpose of assembling the people for political purposes—a custom to which it is devoutly to be hoped this country will not revert. The various Roman fora were often the scenes of fairs abounding in displays of all kinds, to which were assembled vast concourses of people from all the adjacent provinces, and from abroad.

The tidal wave of barbarism which swept over the Roman Empire submerged these institutions, and it was not until the fifth century that they began to appear first in Italy, then in France. In the latter country, in 629, Dagobert established the once famous fair of St. Denis near Paris, which having too much of a religious character, was abolished as a relic of superstition, by the National Assembly in 1789. In the year 800, those of St. Lazare, Aix-la-Chapelle and Troyes were authorized.

In 856, Alfred the Great began to establish them in England. In Germany and the north of Europe, fairs for the sale of slaves were instituted about the year 1000, and human cattle were then empounded. had their teeth, eyes, limbs and bodies examined, no doubt as critically as we examine a horse in these days of peace and safety.

In 1071, that famous robber, William the Conqueror, established these fairs for the sale of captives, taken in war, in England. In 1133, Henry I of England authorized the fair of St. Bartholomew, which continued to exist more than seven hundred years, down to 1855, and was very famous in its day. Then come successively Weyhill fair in Hampshire, which grew to be a great market for sheep; those of St. Faiths, Harborough, Carlisle and Omskirk for Scotch cattle; that of Ipswich, which is held annually in August, for the exhibition and sale of lambs, the yearly sales amounting to 100,000 head, and where also a butter and cheese fair is held in September. Then come the great horse fairs of Horncastle in Lincolnshire; Howden in Yorkshire and Woodbridge in Suffolk, all much frequented by buyers of hackneys, hunters and other fancy horses; also Bristol, Exeter and Gloucester fairs, the latter held in April, being the great cheese fair of the world. In Scotland is the great sheep fair of Falkirk. At Ballin-asloe, in Ireland, the combined sheep and cattle fair, at which place there are annually sold 25,000 cattle and 75,000 sheep. We must not leave out of the enumeration the celebrated fair of Donnybrook, embalmed forever in Irish song and story, where "rows" and "ructions" were the principal pastime, and where, according to one joyous minstrel,

> "You meet with a friend
> And for love knock him down,
> With your sprig of shillalah
> Of shamrock so green."

But, alas! like all bright and beautiful things, it was born to pass away. We will not say "peace to its ashes," for it may be that "e'en in its ashes live its wonted fires;" but instead "green be its memory," that being the color worn on the caubeens of its once hilarious and somewhat truculent visitors.

On the continent of Europe, the most famous fairs were those of St. Denis, where a piece of the true cross was annually exhibited to the multitude, and which was abolished, as we have seen; that of St. Lazare; St. Laurent; St. Ovid; originally all of a religious character, and finally those of Beaucaire and Guibray. These two became, and continued to be, very famous. That of Beaucaire was established by the Count of Toulouse, a very powerful nobleman, and the grant was afterwards confirmed by Charles VIII, and annually drew together more than 200,000 people from all quarters of Europe and the more civilized portions of Asia and Africa. Besides its varied display of rich merchandise, articles of manufacture, works of art, etc., one of the striking features was the mirth and jollity that ran through all the hours like a leaping, flashing brook that pours along through sunny meadows and leafy woodlands; pageants, shows, spectacles, merryandrews, jugglers, dancers, chanters, ropewalkers, clowns, all were there, responsive to the demands for amusement. The sales during the week often amounted to from four to five millions of dollars. The fair of Guibray was but little inferior to that of Beaucaire in any particular. In Holland the fairs of Amsterdam and Rotterdam are equal in many respects to those of France; the fun is more uproarious than at Beaucaire, and one can not but gaze in astonishment upon the spectable of the usually phlegmatic, laborious, economical, money-loving Hollanders turning themselves loose. The amusements are much the same as that at Beaucaire, but characterized by more noise and action; and to and from these people pour in streams—the middle-aged, the old, the grave, the gay, burgomaster and artisan, mistress and maid, are for the time upon one social level, quite gone back to boyhood and girlhood, laughing, hallooing, pushing and pulling, gorging themselves with a kind of cake peculiar to the fair, and drinks of varying potency.

In our own country, the fair sprang into existence with but little patronage from wealth or power, save in one notable instance, to which I wish to refer. The far-seeing, indefatigable and wholly patriotic Jefferson, fully persuaded that the future greatness of his country would arise primarily and principally from her agriculture, devoted much of his time, his great talents, learning, energies and means to the development of this interest. Thus, while minister to France, he set an example worthy of imitation to the present time; eschewing, as much as possible, levees, functions, and idle pageants, he devoted himself to a thorough investigation of the methods of agriculture and manufacture, not only in France, but of the countries lying adjacent. He took up his dwelling among the farmers and learned what they knew of seed, of soil, of cultivation and preparation for market. The result of his investigation he communicated to his fellow countrymen, sending them seed, encouraging experimentation, and causing such to be made upon his own farm at Monticello, and patronizing all of the means of disseminating knowledge of agriculture, horticulture, stockbreeding, etc., including the fair, the most potent of all agents.

In medieval times the fair accomplished several great and notable things: It brought together in social communion widely separated people, thus softening provincial and national jealousies and animosities; it brought into one exhibition the products of hands and minds of these various people, it opened up a highway for commerce and trade, as no other agency had been able to accomplish. In these times when these advance guards of civilization may go almost where they will, it is difficult to conceive how cruelly they were hampered in those. What with pirates, "rovers," "seawolves," and "seabeggers" taking all and scuttling the ship at sea, and tariff, imposts, tolls, duties, fines and outright robberies; taking all save a modicum upon land, none save the hardiest and the most necessitous would assay enterprises so full of hazard. To the merchant and trader, then, the fair came as an inestimable blessing; authorized by the decree of monarch and powerful noble, protection and immunity were extended to all coming or going to or from such, and anyone hindering, did so at his peril. Not only was the person of the merchant or trader protected, but his goods and belongings were exempt from all duties and fines, etc.; so such relief was found for both as had not been known for centuries; and on the other hand, rulers began to find great advantage accruing to their dominions by reason of the consequent influx of trade, and so the fair became more widely recognized and patronized and was granted more privileges, and violence and oppressive exactions declined correspondingly.

A study of the history of fairs shows us that the period of their existence is not necessarily a limited one, since those of Beaucaire and St. Bartholomew continued through many centuries. It shows, however, that evolution is a constant accompaniment and a necessity to perpetuity. Thus, the religious and political gatherings and the slave market, gave way to the more modern features; when commerce had found an open way which it might pursue unmolested, and social intercourse had been established between people, then another evolution took place, and the fair took another phase, more nearly resembling the present one.

Now, however, the agriculturist, the horticulturist, the manufacturer and the artisan have been taught by the objects presented by the fair, the same lessons, with but little variation, over and over, until but little remains to be done in that direction. Interest in the big pumpkin, the tall corn, the prize bull, even the 2:20 trot, have palled by repetition. Shall the fair, having accomplished all it can do, pass out of existence, or shall it renew its potency.

The great majority of our people have seen specimens of the finest stock, and the finest products of farm, of orchard, of loom, of mine and of shops, but are these possessed as generally as might be, and may not our fairs become valuable agencies, as do the fairs of Falkirk, of Ballin-asloe, and Howden? In fact, may they not, to some extent, resolve themselves into great annual markets, whose material is guaranteed and sold at rates mutually advantageous to buyer and seller?

It is said abroad that the American people work too hard and give themselves too little relaxation and amusement; their holidays are too few, and in consequence we are becoming "bundles of nerves," "howling dyspeptics," etc. In our own State four large asylums, full of the insane, might also speak in affirmation of this. Who can measure the good that may be accomplished by helping our people to throw care to the winds and for a short time revert to that primitive state in which those of mature years and responsibilities and labors may romp like children—for the poet speaks truly when he says that "men are but children grown tall," and it also is true that it is necessary to mental and physical health, to put off the artificial state and put on the natural one at longer or shorter intervals. I would urge therefore upon your consideration the advisability of making the amusement and entertainment features of our fairs much more conspicuous than they are now. Let a full line of the cleanest and best diversions that may be had, be provided, such as shows, and pageants of all kinds, and encourage in every legitimate way something of the free, uproarous mirth to be witnessed at the fairs of Amsterdam and Rotterdam.

To carry out these ideas successfully, will perhaps require a concentration of energies and means. Instead of a fair to every county, let us have four or five counties to every fair; it can in time be so arranged as to satisfy each, and instead of a number of puny institutions, which one bad season threatens with extinction, we would have not so many, but those more capable of meeting every reasonable demand, and strong enough to maintain themselves against the accidental and casual.

President Insley: We have with us this afternoon Mr. J. Q. Thomas, of Rushville, who will speak on the subject of "The Fair, Its Object and Benefits to Both Town and Country."

FAIRS—THEIR OBJECTS AND BENEFITS TO BOTH TOWN AND COUNTRY.

Fairs, as we now know them, are essentially an American product, which has not as yet reached a centennial. After their introduction they had many opposing elements with which to contend and overcome. Their benefits, and even their necessity, were matters of conjecture and had to be demonstrated. They had to outlive the class who, as at the inception of every innovation or new enterprise, oppose everything they do not comprehend or originate. But with untiring zeal the progressive element of the country carried them through to success. They met with varying success until a period within the memory of many now present; when their purposes became understood and their influence and benefits became more and more apparent, they took on life and energy and became established institutions bringing in their train, directly or otherwise, comfort to the home, development to agriculture, expansion to manufacture, a stimulant to genius; being great storehouses of instruction, veritable universities of industry.

The fairs of Europe, where they originated, had but little significance, being either periodical markets of greater or lesser magnitude, or holiday occasions of mirth and pleasure.

The original Amercan conception embodied all these and went a step forward by embracing and encouraging the development of the products of the soil and the improvement of stock.

The American idea was an expansive one and not to be hedged about by a contracted sphere. Reaching out from the boundaries of agriculture it took in the culinary and every department of women's handiwork, the mill and the factory. Thence forward to the domain of invention and architecture, literature and art, still extending its influence and helpfulness until every department of skill within the realm of human ingenuity had been compassed.

From these improved conditions have sprung the institutes and colleges of agriculture and filled them and the colleges of art and literature with intelligent young men and women who are destined to enlighten and rule the nation, if not the world.

From these county fairs, over which pessimists have pronounced learned elegies, each succeeding season for the last forty years, have been evolved State and national exhibitions and international expositions, culminating in our own country, where will be gathered from every land the wonders of nature, relics of prehistoric times, the architecture of the ages, the greatest works of the greatest masters in art and literature, the skill and invention of nations, and the processes of development from the remotest period to the living present, in the presence of which will stand the wise men of the world in utter amazement as they contemplate the wonders of the age in which we have been permitted to live. All conceived and executed for the study and education of the world. The tall oaks which "from little acrons grow" are of great development, but not to be compared in magnitude with this exposition in its evolution from the little New York fair instituted by Elkanah Watson eighty-nine years ago.

Fairs, not being dividend paying institutions as a rule, are free from the intrigues of designing and avaricious men, who would conduct them for their own selfish purposes. But in most communities there are to be found men, whose ideas are on a par with their appetites, who get into the management. They, at once, discover the decadence of the fair because of its morality and temperance and want to eliminate what they term "Sunday-school methods" and substitute the saloon and gambling house, with all their attending iniquity, and the object of the fairs diverted from the paths of usefulness into intemperance and excess, and degenerated in proportion to the extent of such management.

Permit me to digress far enough to say that the last State exhibition was well up to the ideal in both exhibition and management, and all such fairs should have the encouragement of every citizen and the support of the Legislature in any emergency.

What fairs have accomplished defines their object and purpose and is the heritage of everyone, whether from town or country. There is no other place provided for the assemblage of the people where such great and diversified benefits can be obtained.

To succeed upon the farm the agriculturist must adopt advanced methods and prosecute the lines most to his liking. He must know how to score its points if he desires a perfect animal. He must know the most profitable stock to raise and how to care for it, the best feed to use and the best results obtainable from it. He must know the varieties best adapted to his purposes and the climate where he lives, if he wishes to set an orchard or a vineyard. He must know the kinds of seed to plant and the character and needs of the soil where he plants it.

He must know something of the best machinery and implements, how to use and repair them, and where he can best buy them.

To be a useful citizen he must keep advised as to the affairs of his country and in touch with the progressive element of his county and State.

At these great schools of instruction he sees the best specimens in every department, carefully observes the points of merit and improvement, and by free intercourse with the people, he is enabled to correct his mistakes and profit by the experience of others.

The housewife learns of new ideas for the development, beautifying and economical management of the home. In the sphere of needlework she is enchanted with practical and useful designs. In greeting friends and extending acquaintance she feels the burden of the daily round of life lightened, and for a time forgets the oft-recurring thought that "woman's work is never done."

The boys about the barns and pens, the agricultural, horticultural and mechanical halls are looking, listening, learning; gathering information for the foundation of the edifice of future usefulness. The girls, here with the choicest viands, there among the flowers, here in the midst of the finest display of needlework, there in the presence of the greatest works of art, looking, listening, learning, storing up ideas of business, culture and refinement.

The artist hangs his best productions alongside those of another. He hears the expressions of commendation and criticism. While flushed with success he is gratified to learn of mistakes in placing lights and shadows. The tradesman and manufacturer find in the exhibition of their goods the most practical as well as the most economical method of attracting the attention of the people, and the genius suggestions and material for his limitless field of investigation. And as a means of advertising a county and of disseminating information among the people, at home and abroad, as to its industries and products, the fair has no equal.

There is another feature, and in nowise the least of the benefits of the fair, which may be enjoyed in common by every citizen. Most men and women possess a social and helpful disposition. But when the farmer, merchant, artisan and men and women of every vocation meet only in the relations of active business life, burdened with its perplexing cares and responsibilities, and only know each other as seen and engaged in the hard lines of barter and trade, in the midst of the fiercest competition, these characteristics are not always apparent. But at the fair, an institution "of the people, by the people and for the people," the whole community from every avenue, calling and sphere in life, and of every political and religious conviction, can meet on the level, and, laying aside the cares of business, enjoy a season of social and refined recreation. In thus commingling and becoming better acquainted they see developed those virtues which form the base of every noble action and receive a social uplift, such as they never before experienced, elevating them to a higher plane, from which viewpoint they obtain a better insight into life and a better opinion of their fellowmen and better enabling them to deal more generously and more intelligently with the social and business problems of life.

These are some of the benefits accruing to the people by reason of the wisdom and foresight of the progressive men who instituted and perpetuated these great annual festivals. And when it shall be no longer necessary to grow two blades of grass where there formerly was but one; or to continue the United States the leading agricultural country on the globe; or when agricultural development and inventive genius have reached their limit; when social conditions need no farther improvement nor embellishment, and when there are no more victories to be achieved in the sphere of intellectual research and human ingenuity, then the fairs may have lived out the days of their usefulness and be ready to be known only in history.

President Insley: The next paper will be, "In What Departments of the Fair can the Management be Improved?" This paper will be read by Mr. H. L. Nowlin, of Lawrenceburg.

Mr. Nowlin: This, of course, is a subject that is of much interest to every manager of a fair or superintendent of a department, and one I feel myself not competent to handle. However, in the short paper I shall read I shall give you some of the things I have noticed in different places, and how some things may be avoided.

IN WHAT DEPARTMENTS OF THE FAIR CAN THE MANAGEMENT BE IMPROVED?

Fairs are supposed to be run for what money can be made out of them, so it is necessary that the people who attend them for various purposes be given the best opportunity possible to accomplish their objects, and thus be induced to come.

There are three classes at every fair—the privilege people, the exhibitors, and the patrons.

I place the privilege people first, because they are only to be treated briefly. It has been said that "you could kick a privilege man over the back fence and he would beat you in at the front gate," but they are worthy of consideration. It is an injustice to the association and the better class of concessionaires to do collecting in any other way than cash in advance. If this is done it does away with most of the worst element and gives those who are willing to pay the advantage of all the trade. It is the case nearly every time that they are able to pay all down before the fair opens. If not, then it is reasonable to let them pay half before the fair begins, one-fourth the first day of the fair and the balance the second day. If they are not able to do this, they will never pay all of their money, and thus get the benefit of your fair without paying for it, and not only leave you short, but do great injustice to those who do pay. No privilege should be allowed on the grounds that can not pay as indicated. Individually, I should not allow any games of chance of any description or any kind of intoxicating liquors on the grounds, and above all keep the immoral shows away.

The exhibitors are the people who make the fair, and are worthy of much more consideration than they get in many places. How many fairs do the exhibitors go to and find things in readiness for them? Those of us who have been there know. I have pulled to a town where a fair was to be held and the first thing was the drayman held me up. No arrangement had been made for the hauling and the exhibitors were at their mercy. Arrived at the grounds, stables and pens are out of repair, and more than once have I worked three or four hours before I could get the stock in. No superintendent appeared until the first or even the second day of the fair, and none of the officers could be found. All this puts the exhibitor to needless trouble and expense and could be remedied by a very little attention by some official. Every department superintendent owes it to the exhibitor to either be present all the time after exhibits begin to arrive or have some competent person to take his place. Of course this makes these positions hard to fill; but look at the other side of the question and see how the exhibitor fares who follows the business week after week, while the superintendent only has a few days.

It is due exhibitors and patrons that every exhibit be placed and ready for inspection at the hour for opening. How often do we find some of the buildings locked while people are paying their money at the gates to see the exhibits contained in those very buildings.

There is no justice or reason for this if every person complies with the rules. It is something that can be easily remedied. Exhibitors must be treated courteously and afforded every opportunity to display their goods if they are expected to patronize our fair. Their lot is a hard one at best. To the gate receipts we look for most of the income, and it is due the patrons of any fair that arrangements are such that they can see the exhibits and be accommodated with as many conveniences as possible. They come for instruction and pleasure, and should be afforded every opportunity for these with as little annoyance as possible.

In gate arrangements I do not see how much if any improvement can be made, but there is one thing that will greatly improve every department in all respects, and that is an information bureau.

There are thousands of questions asked on every fair ground every year that are not answered because they are not put to the proper person. Of course, the larger fairs need this more than the smaller ones, but it is needed at every fair worthy that name.

Now, I will give my idea as I think it could be applied to the State Fair, and it can be modified to suit any county fair.

Locate the building in a central place and make it as conspicuous as possible. Let the attendants be selected who will always be courteous and quick to answer questions. It will take three or four people to do the work properly and they will need to be on the grounds a full week before the fair opens.

Have a large plat of the grounds, showing the location of every building and lot. Then take the mechanical department for example and let the superintendent give the people in charge the names of every exhibitor and his location. These will be arranged in alphabetical order, leaving ample space between the ending of one letter and the beginning of the next for any additional names as the space is taken. As other exhibits are located let them be reported to the bureau and their names placed on the list. The privilege department can be on the same plan.

In the live stock departments they can have the names of all exhibitors and the stalls or pens assigned to them and the names arranged the same as the mechanical. For instance, we have a speed department, and under that head there is John Jones, 6, 7, 8, 9, 10—8. The party giving the information will know at a glance that John Jones has stalls Nos. 6, 7, 8, 9, 10, in barn 8. Then there is Geo. Morgan, 1, 2, 3, 4—H. It can be seen at a glance that Geo. Morgan has stalls Nos. 1, 2, 3, 4, in barn H. It is easy to show the inquirer where barn H is, and then it is easy for him to find the stalls. The same plan can be followed in the cattle, sheep and swine departments. Possibly the poultry department can be arranged so an exhibitor could be located there or nearly so, and the other departments could only be shown as a whole.

The question is raised, "Why not let the superintendent give this information?" He knows all these things. Well, find the superintendent and get the information. It will usually be as easy to locate the exhibit as the superintendent, for in each case the inquirer is hunting for a stranger in a strange land.

It seems to me that this would relieve every superintendent of much trouble and it would certainly be a great benefit to the exhibitor and patrons of the fair.

Let this bureau be connected with the telephone and have the time tables of every railroad and electric line and where they will stop. Also the time of all special trains' arrival and departure.

They should have the program complete, and whenever any change is made it must be reported to them immediately, that they may make no mistakes. It is due the exhibitors and the patrons that they know of any change as soon as that change is decided upon.

Of course there are many little details that will naturally come up. and some annoyance, and perhaps every person does not realize the questions that are asked.

If our fairs are to be a success in the future we must cater to the wants of the people, and I think most of them want to see what they pay for. One person who is disappointed will do a fair more harm than twenty pleased patrons will do it good.

At most of the county fairs this arrangement can be made at the secretary's office, but how often we find that office locked up, and we can hunt for the information wanted or go away without it.

President Insley: If every fair had a superintendent who was such a bureau of information as our Lawrenceburg friend there wouldn't be so much trouble. I visited the Lawrenceburg fair last year, and found that Brother Nowlin was about the whole thing there, and I found out, too, that they had a good fair.

Mr. W. E. Blackstock read the following paper:

THE FUTURE OUTLOOK FOR COUNTY FAIRS.

Public sentiment in this State in favor of agricultural and mechanical exhibitions is of recent origin and wholly within the past fifty years. The county fair system became common only about twenty years ago and has scarcely passed its experimental stages. In some counties meetings have been held consecutively for ten, twenty or thirty years, and are still in popular favor, while on the other hand there are others that started just as well, and ran fairly for a time, but now their buildings are weather-stained, fences are tottering and their general appearances indicate a doubtful future. There are still others that have gone to racing only, and not a few have been abandoned altogether. Therefore the future of the county fair is a problem worthy of serious consideration.

Some people believe that the day for these meetings is past, and that under present conditions there is no natural necessity for them. Be that as it may, it must be admitted that financial and social conditions are constantly changing, and it is now more difficult to please the popular taste in many things than it was twenty or thirty years ago. Those past years were times of wonderful agricultural development. In those early days the timber and swamp lands were being converted into fertile farms, and to this end the industrious farmer hailed with enthusiasm the helpful advantages of the annual fair. It was there that he first saw the pedigreed live stock so recently imported into this country. He saw its preference over the scrub stock of his vicinity. He saw there the first twine binder, the best farming implements, and many other new things. These meetings were attractive novelties, combining the essentials of a school, circus and general outing. In those years there were no world's fairs nor big international shows to divert public attention, hence every environment warranted success, and under any ordinary, or even inferior management a popular event might be expected every year in any county.

However, these circumstances of growing wealth and rural thrift soon began to work changes, and a crisis in fair management was precipitated, for with the introduction of high-priced live stock, exhibitors and visitors demanded better accommodations. The leaky board roof stable gave way to the shingle roof, outdoor pens to more sanitary enclosures, hydraulic water plants displaced the wooden pump. Higher premiums had to be offered and bigger purses hung on the wire. All this, of course, involved a larger attendance, and a heavier draft upon the gate receipts, or a financial shortage was inevitable. It was then the prorata clause was inserted in the premium lists, and in many sad instances, especially in counties of small population, the income failed to meet outgoing expenses and the premiums being prorated, or, still worse, not rated at all, the credit of the association was lost, and the enterprise was a failure. The Darwinian theory of a survival of the fittest, governs all living things, and applies to the fair situation specifically. The county fairs that have passed away, died chiefly because they were unfitted to the conditions of their locality. It is mistaken management for every cross roads or village association to build their outfit upon the same costly plan as is proper in the more wealthy and populous counties. Every fair can not be a State fair, not even in outline, for to be useful there must be adaptation to local surroundings. In almost every community where such institutions are desirable there is some special industry, in which a large number of persons are interested. If so, this particular feature should have a special prominence, and thus give the event an individuality that will command attention of the home people and at the same time advertise to strangers in attendance the resources of the neighborhood; hence, for lack of population from which to draw sufficient gate receipts, rural fairs will always be at a disadvantage under our American fair system. For them the European system is much better.

Unendowed fairs can not compete with State endowed fairs. There is another question which intimately affects all county fairs at the present time, and concerns still more their future usefulness and permanency. It is the trend of commerce towards larger capitalization of business interests, in the merging of railroads and banks, larger factories and larger farms. Department stores have closed up the smaller stores, and in like manner the big fairs attract attention from the little ones. Whether we like it or not the spirit of concentration and monopoly is in almost everything. Certainly in all the States the disparity between the State fairs and the county fairs is growing more noticeable every year. Take, for instance, the Indiana State Fair, which has an annual donation for premiums of $10,000, and even this amount is not sufficient for every needed requirement of our State Fair. The U. S. Congress has donated $5,000,000 to the St. Louis fair; they now ask for a loan of $4,000,000 more. The Illinois Legislature within the past six years appropriated about one-half million dollars for the equipment of their State fair and premiums therefor. The State of Ohio gave a like amount for this same important purpose, and the people of those States are well pleased with this investment of public money. They are proud of their State fairs, and well they should be. Their buildings are large enough for conducting every department—except speed—under cover from bad weather. Cement walks connect the buildings and are also under roof, they have clean toilet rooms for all, and every natural convenience. There are buildings capable of entertaining 50,000 visitors independent of rain or storm. Consequently no mere local fair can compete with State supported institutions. As the one increases its facilities, the other relatively decreases in popular esteem. Just as the private colleges of thirty years ago unless privately endowed, have all given place to State colleges supported by the State, so it may be stated as a safe proposition that it is only a question of time until all the county fairs dependent upon gate and privilege receipts and unaided by public money and public lands will pass out of existence. They can not always cover repairs, 3 per cent. insurance rates, premiums, advertising, salaries, etc., all dependent upon the uncertain chance of four days of favorable weather. It is too much like playing a game of chance. The exclusive gate receipt only association may have succeeded in past years, and a few of them still pay expenses, but in the near future they will all go into retirement. This leads to the suggestion that in localities, as before stated, where the population is sparse and scattered, their fairs of the future will be somewhat after the fashion of the old fair days of England and France that have been held for centuries, being a live stock street exhibition and sale day combined. The merchants, restaurants and fakirs, will pay the premiums. No entry fees, no big barns standing unoccupied 361 days in the year, no professional exhibitor, for the home producer will furnish the whole show. A few such meetings have been held in Indiana and are considered desirable. However, in the more populous districts, where railways center, and mining or manufacturing are interested, the old-fashioned county fair, with its public park, race track, and training stables will always be a necessity. Some of our best associations now occupy free lands purchased by county commissioners, and in the future all well managed fairs will have free lands and their maintenance will be guaranteed by county funds upon the same principle of public utility as the park systems of our cities and the agricultural and technical colleges. The educational advantages of agricultural and mechanical exhibitions are no longer questioned. They have a world-wide recognition in every civilized country, hence the essential feature of every fair, big or little, should be its exhibits. If these are lacking, the educational idea is eliminated and all that is left is the amusement idea. If this latter only is desired, then the carnival street fair is what you should patronize. Side shows at the fair are good or bad of their kind, but the main show should be the exhibits.

Fairs are educational. The exhibition of a fine horse or other domestic animal is the expression of a fine thought. His graceful carriage and high-toned character come not by chance. They are the result of long continued, scientific breeding. The principles involved therein are taught in schools and books, but the essentially fine points can best be seen in the show rings at the fair. It is by actual comparisons and competition that points of perfection can best be demonstrated. The competitive exhibit is the ultimate test of productive excellence, and for this reason, the students from all our agricultural colleges attended the recent Chicago stock show for purposes of practical education. The Nebraska college produced on their experimental farm and exhibited at that show the grand champion fat steer over all competitors and drew the prize therefor, thus our fairs are now—and in the future will be still more—closely allied with the highest branches of the educational system of this country, and will be aided by public appropriations upon the same grounds as are our common schools and colleges. It is the fault of fair managers if they are not. Undoubtedly the county fairs of Indiana that are liberally endowed and wisely managed are destined to be a prominent factor in developing the intelligence of the people, and all the wealth producing industries of the State, and just as long as they are made useful towards that end the people of the several counties will support them and demand their continuance and perpetuity.

President Insley: There is one topic here that should, and I suppose does, interest every State fair, the question of sweepstakes, and they are interested in sweepstakes, not only in the horse department, but in the departments of cattle, sheep, and swine. In our county fair we have not done away with it, and we find that the general purpose horse, the one who is the best in his class, will probably take the sweepstakes prize.

Mr. Blackstock: I may be mistaken, but I think it is a mistake for the county fairs to have a sweepstake prize. I think it is proper at the State Fair and the big fairs, for the reason that the extent of the exhibits at those fairs justify it. Another thing, if you want the sweepstakes premium you must put up a reasonable amount of money, and the county fairs, as a rule, do not have the money. Unless you put up quite a sum of money it will not amount to anything as an advertising medium. You had better put the money into the other premiums. That is my opinion of the matter of sweepstakes premiums at county fairs.

There being no other miscellaneous business, President Insley announced that the next order of business would be the election of officers.

Mr. Blackstock: I desire to nominate for President for the coming year Mr. J. J. Insley.

On motion nominations were closed, and Mr. Insley was elected by acclamation.

Mr. Insley: Next year I hope we shall not have the Hereford men, the Shorthorn Breeders, the Corn Growers and the Swine Breeders all meeting at the same time that the State Board of Agriculture and the State Fair Managers are holding their meetings. I think we should have a program committee to prepare a program and work up an interest in these meetings.

Mr. Blackstock: I move that the chair appoint a committee of five to prepare a program for the next annual meeting of the State Fair Managers Association.

Mr. Insley: With your permission I will take this matter under advisement and notify Mr. Blackstock of the appointment of this committee. Mr. Blackstock can then notify the members of the committee.

Mr. Blackstock was nominated for Vice-President. There being no other nominations, Mr. Blackstock was elected by acclamation.

There being no further business to come before the meeting it was adjourned sine die.

THE

Indiana Corn Growers' Association,

Tuesday, January 5, 1904

ADDRESS OF C. B. CLORE.

What Indiana does at the St. Louis World's Fair does not depend wholly upon Mr. Overstreet and me, but does depend more largely upon what the farmers of Indiana are going to do. If we go to the St. Louis World's Fair next year with a sample of corn, wheat, oats, etc., from every farmer in Indiana, making a large class, we can make a good exhibit. Otherwise we can not.

In each county there is an agent appointed to gather together the selections of the different grains in the county in which he lives. It seems to me, however, that some of these agents are not very much interested in the work, while others are very much interested. Quite a number of counties in the State do not seem to care. Where appropriations have been made by the commissioners, the agents have been able to collect quite a good lot of stuff to be used in the exhibit. Every farmer who sends a sample of wheat, corn, or whatever grain it might be, will be given full credit for it. Should any one here this afternoon send in a collection, do not fail to put on it your name, the name of the article, for in that event you will be given full credit for the display.

It seems to me the farmers in Indiana ought to be greatly interested in this work, as our State will compare favorably with any State in the Union as far as corn is concerned, not only as to quality but also quantity, that is, the number of bushels to the acre.

The outcome of Indiana's farm exhibit, I say, then depends upon what you do. Mr. Overstreet and I do not stand for that. We are only two people. We want to represent every corn grower in the State, and therefore urge you to send a sample of your best corn, your best wheat, or other grains and assure you that you will be given due and full credit for the exhibit.

Mr. Overstreet and I and a number of merchants in Franklin are endeavoring to interest the farmers in this work, and have arranged for a corn contest to be held the 11th and 12th of February. We have offered fifty-five or sixty prizes, ranging in value from an Oliver steel plow down to the best package of tobacco. These prizes are gladly offered, and the entire exhibit is to be carried to St. Louis as a county exhibit. Many people have asked me if it is possible for a county to make a county exhibit. It is thus far: All articles from any county will be classed together and so labeled. If your county sends in a large quantity of corn, wheat, or other stuff, it will be labeled so, and the grower will be credited with it. It will be impossible to give space to any one county whereby it can make a display exhibit. We have a number of cases in which to show the corn and where it can not be handled. You know everybody would pluck out a grain or two, if it were not protected, and by the end of six months there would not be much of the corn left.

As to the corn to be exhibited, I will say that it must be last year's corn, and as far as entering is concerned, you will not be allowed to enter in the fall.

There are no cash prizes offered by the commission. Everything is medals and diplomas. It might be well and proper for me to say here that I have a diploma, which did not cost me anything, that I won in Paris, France, and I am very proud of it and consider it one of my nicest treasures. You now have a chance to enter this fair and win a prize which will cost no more than mine did.

Now, as to the quantity of corn in your exhibits. The requirement is from ten to twenty ears. I think the quantity of other grains is most too small, as the commission only asks not less than one-half a peck, so be sure and do not send less than that amount. Regarding the shipping of your exhibit, I think arrangement has been made to send them here in care of Commissioner W. W. Stevens, but we are asking him now to have them sent to St. Louis direct, but have not had his answer. If the exhibits are sent here you will have the expense of having it hauled from the depot and then reshipping to St. Louis. At Franklin we have a large warehouse where we are at work now on installments of our exhibits, putting them up in sections, this warehouse being near the depot. It would, of course, be of less expense to send direct to St. Louis. There should be an agent in every county to look after the different collections. His expenses are all paid. Should there be no agent in your county, you will send your exhibit direct to us or to Mr. Stevens. We will pay the freight.

Mr. Overstreet and I are going to use every effort, and ask your assistance. Send in your stuff, for we want to be classed in the same class with Illinois when the exhibit is completed. I know that our friend, Mr. Rankin, has arranged for a much more elaborate exhibit than we have, but you must remember this, that where we have but $10,000 to be put in our special corn and agricultural exhibit they have two and a half times that much; so, if you go to St. Louis next season and find that Indiana has not as large an exhibit as Illinois, it will be because we had less than half the amount that Illinois had for our display.

Now, about shipping your corn. Let me advise you to be sure and wrap each ear securely and pack them closely in a box so they can not move about in transit and lose any part of the grains, and be received in first-class condition. As I said at the beginning, ship either to us direct or to Commissioner Stevens at the State House. All collections should be sent in by the first of February. You see you will have to use last year's growth, as the show will be over before the next year's crop.

Mr. Overstreet and I have the management of the special corn and agricultural exhibit, and the two are practically put together. Bear in mind that the success of Indiana's exhibit depends upon what each farmer is going to do. If every farmer and every agent selected should make up his mind to make a good showing, I assure you Illinois would not stand much of a chance. It would be a good thing for the agents to go to a man's corn crib and get the corn himself in order that our exhibit be a good one, if the farmer is not interested in the work himself.

SOME THINGS WHICH SHOULD RECEIVE ATTENTION IN CORN BREEDING.

PROF. A. T. WIANCKO.

The subject of corn improvement has been so often and so thoroughly discussed in the past few years that I do not expect to say anything which the members of this Association have not already heard or read about. But the subject is one of such far reaching importance that it will bear repetition.

I take it for granted that every member feels a personal interest in corn improvement, and wishes, himself, to do some work along this line. With this understanding, I wish to spend a few minutes at my disposal this morning in speaking of some of the points the beginner in corn breeding work must consider and always keep in sight.

First, I would say, begin your breeding upon a small scale. I would emphasize this because you can give a small plat more careful attention, and it is better to make a big improvement in a small lot of corn than a small improvement in a large lot. A small plat planted with the few very best ears will produce enough to provide a fine quality of seed corn for the general crop the following season.

To begin with you should secure a few good ears of the very best variety for your conditions. If you have not already got it, it may be advisable to conduct a small variety test of those varieties which appear to suit your conditions.

In this preliminary work the varieties should be planted side by side under the same conditions and a careful study of each made. Having selected the variety with which you wish to begin, give up all others and keep the variety pure by careful selection and keeping the breeding plat isolated so that the pollen from other fields can not reach it. You can always find a spot upon the farm where a small plat can be isolated. There are just as good reasons for keeping a variety of corn pure as there are for keeping a breed of live stock pure.

For the breeding plat we should always select a good, clean piece of ground where the corn can be given the very best attention. Don't be afraid of spending too much time upon this small plat. If you use the product as seed for the next year's field crop, you will be many times repaid for the extra trouble. Always select the very best ears from the breeding plat for planting in a similar plat next year.

Plant each two ears in alternate rows and detassel all the rows of one of the ears, to prevent inbreeding, and select seed for next year's plat from the detasseled rows.

All breeding should be toward a single, definite type. In carrying out this, we must keep in mind the size, form and color of the ear; the form, depth, shape, roughness and hardness of the kernel; the covering of butts and tips; the time of maturity, etc. The character and size of the stalk and the root and leaf development, as well as the position and character of the shank must also be kept in mind. A good, vigorous stalk may make the difference between a good and poor crop, especially when seasons are unfavorable. Productiveness must, of course, always be a leading interest, and all barren and weak stalks should be destroyed before they shed pollen. The careful corn breeder should be personally acquainted with each and every stalk in the breeding plat, and a record of the pedigree of each ear selected for seed in the breeding plat should be kept.

Before closing I wish to say a word about special purpose breeding, such as breeding for protein, starch or fat oontent of the kernels. Every farmer may do something along one or other of these lines, and for most farmers breeding for protein, which gives the corn a higher feeding value, will be most interesting. The methods which the farmer can employ are based upon the relative proportions of the three principal parts of the kernel—the germ; the white, starchy, and the hard, horny portions—and by careful examinations of these much can be done without a chemical analysis. All the kernels of an ear of corn are approximately of the same composition, but different ears vary considerably. In making examinations pick out a few kernels and by cutting them into sections with a sharp knife, study the relative proportions of the three parts, bearing in mind that the germ and the hard, horny portions of the kernel contain the most of the protein and the white, starchy portion the least. The germ contains most of the oil, the hard, horny portion comes next, and the white, starchy portion contains very little oil. The white, starchy portions consist almost entirely of starch; the hard, horny portion comes next, while the germ contains comparatively little starch.

The would-be corn breeder must make up his mind to give the work the most careful and persistent attention, and if he does so, his efforts will surely be crowned with success. Better corn and more bushels per acre should be the watchword of this Association.

At the close of Prof. Wiancko's address, President McMahan announced that before adjournment for the noon hour, a nominating committee would be selected to nominate officers for the Association for the coming year. Mr. Benjamin, Lake County, was selected for the northern part of the State, Mr. E. C. Martindale, Hancock County, for southern Indiana, and Mr. A. O. Lockridge, Greencastle, for middle Indiana. Mr. Lockridge asked to be excused from serving on the committee, as he felt there were others nearer the centre of the State than he, but his objections were not accepted and he was retained as a committeeman.

The session then adjourned until 1.15.

The afternoon session was called to order by the President a little later than the appointed hour, in Room 67. A report from the nominating committee was read as follows:

Mr. President and Gentlemen:

Your committee begs to report the following nominations for officers to serve during the coming year: For President, H. F. McMahan; for Secretary and Treasurer, Scott Meeks, and for Vice-President, B. F. Maish.

A vote was taken and resulted in the election of the nominations as they stood. Mr. McMahan said he was glad that he had been re-elected, as he really wanted the place again, in order that he might put forth his best efforts in the direction of the "corn school" to be held the last week in January at Purdue University. He urged every one present to attend the school if possible and to interest others in the work to be done there in order that it might be well attended. It would surely prove beneficial to those interested.

For the benefit of those who were anxious to see a sample of corn scored, Prof. Wiancko, one of the most capable men in this work, gave an exhibition of "scoring corn" in the hall. It was a very interesting procedure to those who witnessed it, and will prove of value to the farmers.

Mr. George Walker, of Hancock County, had on display a curiosity in the nature of a peculiar growth of popcorn. There were two well and perfectly developed ears of rice popcorn growing upon the same stock, the division being at the tip end of the stock, thus separating the ears the full length.

THIRTY-SECOND ANNUAL MEETING

OF THE

Indiana Shorthorn Breeders' Association,

January 6 and 7, 1904.

E. W. Bowen, President	Delphi, Ind.
W. F. Christian, Vice-President	Indianapolis, Ind.
J. E. Silverthorn, Treasurer	Rossville, Ind.
John G. Gartin, Secretary	Burney, Ind.

FIRST SESSION.

The first session was called to order at 2 p. m., January 6, by President E. W. Bowen.

Secretary Gartin read the minutes of the last annual meeting.

On motion the report was received.

President Bowen read the following annual address:

PRESIDENT'S ADDRESS.

Again have we assembled in annual session to celebrate for the thirty-second time the birth of this Association. While we are all glad to have as many with us today as we have, yet when we stop to consider the object of this Association and the number of persons that are, or rather ought to be, interested in an association similar to this, there should be several times as many members as there are, and every member should be an active worker in the interests of the Association and present at every annual meeting, unless detained for a good and valid reason.

Some may be in doubt as to the object of this Association, but I take it that there can be but one and only one true object of any association like this, and that is for the improvement of the Shorthorn cattle. Of course the methods to be pursued in accomplishing our end and the advisability of pursuing any particular method is open for discussion, but yet the object remains always the same. One of the best ways to arrive at correct conclusions as to procedure in any course is to have a full discussion of the matters at hand, so that the other fellow may get the benefit of our ideas and we get the benefit of his, thus insuring to posterity the benefit of all the knowledge gained through the several generations and assist it over the rough and rugged roads that have already been surmounted and assure to mankind a nearer approach to the ideal in the art of breeding. We all remember how the Lord commended the widow, not for the money value of her offering, but for the spirit in which it was given. Let us, therefore, each and all be ever ready and willing to give such assistance as we can, be it great or small, for the good of the cause, thus securing for ourselves the commendations of those who may follow after, ever remembering that none of us know it all, and that though we may think we are not sufficiently versed to take part in these discussions, yet if we are willing to acknowledge our ignorance and ask questions concerning that which we are in doubt about, we may thereby prove a blessing in disguise by simply starting a discussion which may prove valuable to the meeting. I give these few simple hints as one who is always ready and willing to learn all he can, hoping to be able thereby to provoke every person present at this meeting into criticising and discussing every remark I may make, for it is by the discussion of topics and not by the mere acceptance of statements as true that we arrive at true knowledge. If we had all simply accepted every statement as true, instead of trying to find out the truth thereof, do you think that there would have been the improvement in Shorthorns that there was in the last generation or so?

True, we are all subject to the frailties of human nature, in other words we are all human beings and consequently bound to make mistakes, so are we all ambitious and anxious to make all the money we can, honestly, but we should never allow our ambitions to lure us from the well-beaten path, well beaten from having been trod for generations into ways or businesses with which we are unacquainted. We must not forget that old "saw," "A rolling stone gathers no moss." True there come times in one's life when we have the blues, but no man ever got over the blues by sitting down and brooding over his troubles. The only way to do is to buckle your armor on and go at it with renewed vigor, determined to profit by the experiences in the past, ever remembering that there is a silver lining to every cloud, and though it may be dispelled from view for a little while, yet just as sure as you keep right on in the straight and narrow path and do not become bewildered by any mirage that may appear in the distance, but always in the distance, just so sure will the silver lining soon shine forth with renewed effulgence. Just so in the Shorthorn business. Though the business may not be at as high an ebb as it was a few years ago, yet just as the tide goes out and then comes back, so will the Shorthorn business come back, for every business is governed by the same unerring law of nature. Did ever any of you know any business that was floated on the high tide of prosperity forever without any reverses? If you did and can give us the name of that business, I assure you that ere two weeks have rolled around, there will be enough competition in that business to draw the cloud over that silver lining. I predict that we have almost, if not quite, descended to the bottom of the hill on this side, and that soon we will begin the ascent on the other. True, the momentum gained from the descent may not carry us as high as we were before, but I am sure that no breeder cares for that, as it is always better to be on a sound financial basis than to have fictitious prices. So then let none of us become discouraged, but let us all keep right on in the way dictated by our consciences, for that is the best advice to follow, providing we do not allow it to become dwarfed.

Two years ago, being impelled by the success attained the preceding year, we decided to offer special premiums on Indiana cattle at our State Fair that year, and your Executive Committee was instructed to receive subscriptions and make out the premium lists along certain lines laid by yourselves. The committee started out with every encouragement and hope of success until it came to receiving responses to our appeals for subscriptions. Well, you all know the result of our efforts in that direction, and as it is a delicate subject, I will not dwell on it. The only consolation the Executive Committee got out of that year's work was the vote of confidence given it by a re-election at our last annual meeting. We all hate to retire under fire, no matter what the occasion, and I assure you that when the present committee was elected that we determined, if possible, to retrieve our fallen prestige and went at it with renewed vigor, determined that the wishes of this Association with reference to these special prizes should be carried out if it were in our power. The result of our efforts for this last year has already been attested at the last State Fair, not only by the number of animals shown, but by the high quality of the same. Your committee secured by subscriptions from the members of this Association the sum of $500, and after laboring with the State Board of Agriculture we got them to duplicate the amount, thus making the sum of $1,000 offered on Indiana Shorthorns alone. This sum was divided between ten different classes and there were fifty-two entries in these different classes and hardly an inferior animal in the bunch. I now take this opportunity of thanking you on behalf of the committee for the generous subscriptions to that fund, and we desire to say to you all who contributed to the success of that show, whether as an exhibitor or contributor, that but for your assistance, that part of the late Indiana State Fair would have been as dismal a failure as it was the year before, and no one appreciates that more than the committee in charge of both.

You will pardon me if I digress a little while on this line of thought to make mention of the splendid showing made by Indiana Shorthorns at the International Live Stock Exposition last month. I know that you all know, but how many of you have realized that of all the 146 premiums offered on breeding Shorthorns at that exposition, forty-two, or nearly one-third of the entire number, were awarded to Indiana Shorthorns, and in one class alone, five of the first six animals were owned by Indiana breeders. Is not that a record of which every citizen of our own beloved State should feel proud, and should it not instill into the heart of every breeder of Shorthorns within the narrow confines of his State a desire to lend to this Association every assistance that they can that it may be the means of further achievements for this State?

To whom are we indebted for these splendid achievements? Is it not to those who thirty-two years ago joined hands for the support of the Shorthorn banner, and never swerving from their purpose, have each year gathered new recruits and set the standard a little higher, but never overreaching, and whose purpose has been to climb the ladder round by round, rather than to make the ascent at one leap? Is it not to those who have ever stood by this standard, no matter what the height, protecting it from every foe, that this and all similar associations owes its existence?

In closing I want to thank you one and all for the indulgence you have always been willing to show me, and I hope that you will overlook the many mistakes I have made, with my assurance that I have done the best for the Association as I saw it.

TREASURER'S REPORT.

Secretary Gartin read the following report, which on motion was adopted as read:

Receipts during the year for membership fees and dues	$50 50
Expenses during the year, for expense of last meeting, printing circular letter, notes, resolutions, stamps, annual report and program	41 50
Balance in Secretary's hands	$9 00

The Treasurer reported as follows, on hand at last meeting:

General fund	$47 11
Unexpended prize fund	57 87
Total	$104 98
Prize fund collected in 1903	$428 85
Expended prize fund	485 00
Balance in Treasurer's hands—	
General fund	$47 11
Unexpended prize fund	1 72
Total	$48 83

On motion the report of the Treasurer was received.

President Bowen: Inasmuch as Dr. Quick, to whom has been given the next number on the program, is not present at this session, I shall take the liberty of appointing a speaker for this time. We have with us today some Shorthorn breeders who are not members of our Association, and who are not citizens of our State, but as we like to gain all the knowledge we can as to what the breeders of other States are doing, I shall ask Mr. R. M. Dunlap, of California, to address us.

Mr. R. M. Dunlap: I am naturally very modest. However, I came here to learn rather than to teach. I have been in the East about two months, and I feel that I have learned a great deal. The California Shorthorn breeders are becoming thoroughly in earnest. They are endeavoring to breed the modern type of Shorthorns, the low, thick, early maturing kind. I know they are looking East all the time for that kind of stock. That is what brought me East. I am trying to take back better cattle than we have. We can raise the other kind very easily; but we are doing too much of it now and are going to stop as soon as we can.

President Bowen: The breeders of this State feel proud to know that you have considered Indiana a place in which you can get better Shorthorns than in any other State in the Union. It is indeed an honor of which we feel proud.

The next address on the program is assigned to Mrs. Virginia C. Meredith. Mrs. Meredith is not present, and I do not know whether she has prepared an address or not. The discussion on this paper was to have been led by Capt. John Welsh, who is one of the oldest and best breeders in the State. Captain Welsh has always, since I have been a member of the Association, been present at our meetings and has been ready and willing to do his share to make them a success. I think the Captain is amply able to supply the paper off hand as well as lead the discussion. We would like a few remarks from Captain Welsh.

Captain Welsh: I think the chair is out of order.

President Bowen: I don't like to appoint a committee to wait on the Captain and bring him to the front. If you will kindly come forward and address us, we shall all be glad to hear you.

Captain Welsh: In your report you said we were at the bottom of the hill. I suppose you meant by that, that Shorthorns were about as low as they could get?

President Bowen: I did.

Captain Welsh: We have heard a great deal of that sort of talk in the past two years. I had the pleasure of making a trip to Canada with our friend, Mr. Dunlap, and I was surprised at the prices they asked us for Shorthorn cattle. The prices were from $800 for a calf of from eleven to thirteen months, and from that up to $3,500. Mr. Dunlap was looking for show cattle. We found some very good ones. I believe there is too much talk about Shorthorns being too low in this country, especially after our experience in Canada. They treated us very nicely over there, and we had the pleasure of seeing a number of herds, but when it came to the prices they treated us all right, too. For good things they asked good prices. I visited Dryden & Son, Arthur Johnson and a number of other breeders. If we go over there to buy Shorthorns we will have to pay a great deal more money than some of us are getting here for our Shorthorns.

I find that even here at home we can get pretty good prices for decent stock. We have had the pleasure of selling Mr. Dunlap some cattle he thinks good enough to go to California, and we got very decent prices for them, too.

I don't think I can talk in detail about Shorthorns. I am up against it myself all the time, and should like to hear some of the other members talk upon the subject.

Mr. Busby: What about the Canadian auction prices?

Capt. Welsh: I have the impression that the sales are lower than the prices at which Shorthorns are offered when you go there to look for something good.

Mr. Busby: Do the auction prices correspond with the prices asked for Shorthorns at private sales?

Capt. Welsh: No.

Mr. Busby: Have they been holding back their cattle hoping for higher auction prices in the future?

Capt. Welsh: Possibly they have, but I am not in a position to answer that properly. By holding back do you mean that they don't consign their best Shorthorns to the sales?

Mr. Busby: Yes, that is what I mean.

Capt. Welsh: In talking to the manager of the sale to be held in Hamilton this month, he spoke of the cattle to be auctioned as a great deal better than they have been selling at the private sales. Quite a number of cattle have been brought over this year. This manager has a number in quarantine now, and about fifty of them he intends taking to a farm and keeping for breeding purposes. He does not propose to sell any of them, but intends to sell their offspring. Some cattle had just been received at the Johnsons.

Joshua Strange: I should like to ask the Captain about the standard of the imported cattle. Why do we keep all the time looking after imports? Is the standard higher than our home-bred cattle? We have been importing now for about one hundred years, and I think we should now be able to breed as good cattle as any European country. I once asked a European horse breeder in Chicago why, after we had imported their stock here, they would come back for it, and he said we could put bone on it here that they could not. Now, why do we pay these large prices to other countries when our breeding stock seems to be at the top now?

Capt. Welsh: I saw a number of imported cattle in Canada that in our shows rings here would not stand anywhere: they would be so far down you could not see them. I am saying this with all due respect to our Canadian friends, but I saw some imported cattle there that surprised me to think a man would pay for bringing them over. We saw a number of home-bred cattle there that were as good as any I have ever seen. The imported stock I saw there were not better than the home-bred I saw there or our home-bred stock. Possibly it is better to bring over some fresh blood now and then, and then I think we all know the three letters "Imp." brings us a little extra price. I am glad that both sides are importing, but I don't think any of the imported cattle are superior to our cattle or the Canadian cattle.

Mr. Donley: If we are continually paying out large sums of money for these three letters, why do we do it?

Capt. Welsh: We are not all doing it, but those of us who do, get a lot of money from this stock.

Mr. Donley: Why do we do that?

Capt. Welsh: That question is on you, I think.

Mr. Donley: I want to know what you think about it.

Capt. Welsh: You ask why we pay more? Because we can sell for more. When a gentleman comes to look through our herds I think we are apt to say, "This is an imported heifer," or "This is an imported cow." I say that, and I think you all do.

Mr. Donley: I think we want the cattle that have the greatest merit, whether they are imported or home bred. So far as the best Shorthorn cattle are concerned, I think they are found in the United States. I don't think any country in the world has better cattle with the same treatment. I think, too, we have more of them. Mr. Dryden said a year ago he thought there were more good cattle in the United States than anywhere else. Undoubtedly we will all agree that Shorthorn cattle are the best cattle in the world, and if we will leave out this fad of importing cattle, I think we will do even better. Let us get down to real merit and I think we will do a good business. But if we balloon up with something that has no foundation, the market is apt to come down. We often turn down a good home-bred animal and take an imported one that has less merit.

Capt. Welsh: We all know how hard it is to breed a thoroughly good animal, and of course we all want the best. A man will come to you looking for stock and you will offer him a heifer for, say $250. You have animals there that you would probably sell for $100. He wants to buy something cheaper, and you offer him the $100 animal. Then you sell it to him for $100. Will the money you receive for that animal do you as much good as the poor heifer will do you harm?

Mr. Donley: From a business standpoint, perhaps not.

Capt. Welsh: You know that when you ship that animal away the man who bought it will show it to all his neighbors, and if they are good judges of cattle they will say "If that is a thoroughbred, we don't want any of that kind." I don't think that would be a profitable sale.

Mr. Donley: Perhaps that is the only way that man has of bettering his grades.

Capt. Welsh: When you are talking to a young fellow who says to you, "I want to buy something good, and I shall depend upon your judgment;" what are you going to do in that case?

Mr. Donley: He usually has his own judgment about such things, and even if he does not make a good bargain the first time, he will know better next time and often makes a first-class judge of cattle later on.

Mr. Heagey: I can not quite agree with the Captain. His remarks would lead us to believe that a man should start at the top with expensive stock. We have had some experience with people of that kind in our country. We have one man in particular there who started in the Hereford business three years ago. Last week he made an assignment. He started at the top. If he had started more modestly he might have been at the top now instead of where he is. I have known quite a number of men who started in cattle raising in that way and they all ended as he has. If a man will start at the bottom, buy a few not too high-priced cattle, he will probably improve them and stay in the business. I don't think it is good policy to start at the top in any line. I have been in the Shorthorn business a long time and I haven't got to the top yet. I make a little money out of it, more than I do out of other cattle, but if I had mortgaged my farm at the beginning to buy high-priced cattle, I should probably be where my friend in the Hereford business is.

Capt. Welsh: I didn't mean that I thought it best for the beginner to start at the top. I mentioned a heifer at $250 and one at $100 as examples. I don't think $250 is a very high price to pay for a heifer, but you can get a good animal for that price.

Mr. Busby: I am interested in the question that was brought up about the value of imported stock, and whether the imported stock has in it value in excess of the value of our home-bred stock. I think the question is worthy of consideration. In the records of the International show there is a summarization of the awards given to the imported stock in comparison with the native stock. I think the question is partly answered. You will find that the imported stock shared largely in all the awards given. What does that mean? It means that there must be value in that imported stock, or else we had an inferior judge. I assume he had an able judge, and if so, there must be something in the imported blood that makes it take high rank. Coming to the question that we are in the future to break down any false notions on this subject, how are we to do it? I feel that these things are all the working out of natural causes. Opinions get in our minds and they stick there until we are driven from our position through experience. If the imported stock is inferior to the native stock, let us show it in the prize ring. I own nothing that is imported. I am exceedingly sorry I do not, but I have not been able to reach that point yet. I have tried to buy good native stock, but it seems to me that if we are to break down a notion that is false we must do it in the show ring. I believe it is good for us at this time to feel that imported stock has high value, and if our native stock is to compete with it we must work continually and uniformly to the end of defeating that thing.

Mr. Robbins: This seems to be a sort of experience meeting. I think there is nothing really before the meeting. We have had some talk here about how a man should start in the Shorthorn business that is worthy of more consideration than has been given it. It is a pretty big thing to start in the Shorthorn business. Mr. Heagey talks of a man starting in with cheap stock rather than with the high-priced stock. I think the history of the successful breeders of the United States will show us that ninety per cent. of them started with the cheaper cattle; but after a few years of this experiment, they found out their mistake and started over again with better cattle. There is no doubt that a cheap cow has her place. A man will come to your place and buy a cow for $100 when he can not afford to pay $500 for a cow. He gets his money in a poor bred animal and then begins to study the different phases of the question as he never studied it before. In a short time he will see that he started wrong and will buy better animals, but he never would have bought the better animals if he had not started with the cheaper ones and become interested in the matter. I don't think anyone in the State is more opposed to the cheaper class of animals than

I am. In the public sale men will often buy animals they have no business with. When they take the animals home they find they have something they should not have. What is such a man to do about it? He does not advertise, he has no reputation as a breeder and he can not sell the cattle. The result is they are dumped into somebody's public sale and the owner gets rid of them in that way. There somebody picks them up and they are carried along in that way, with their produce. It seems like a hard matter to handle, but it usually results in a man getting a taste for something better. Whether the imported cattle are better than our own home-bred cattle, I am not prepared to say, but I think it is generally conceded that they bring more money. Go back a few years to the time when the Hereford and the Angus cattle began to encroach upon the Shorthorn cattle, and what had we? We had American-bred cattle; we had had no importations for years. As soon as the Hereford and Angus cattle began to come in we had to have a new class of Shorthorns to meet them. Consequently, we went to England and Scotland and bought Shorthorns. The record shows that this imported blood mixed with our American-bred Shorthorns has produced the best cattle we have ever known. I should say without hesitation, that of two animals of equal individual merit, one imported and the other home-bred, I would give the most for the imported one, because the blood it carries will be of the greatest benefit in our herds.

Mr. Donley: But I don't believe in turning down home-bred cattle of superior merit for imported animals. There is no question but that a revolution has been worked in Shorthorn cattle by importations.

Mr. Gartin: Mr. Robbins' remarks about the cheap animals, and the fact that ninety per cent. of the successful breeders of Shorthorn cattle today started with the cheaper animals, but had lost time by so doing, are interesting. We have, however, examples that are quite different from that. The first three registered cattle our President Bowen ever owned cost him $3,300. That is a case where a man started at the top. I think a man's means should govern, to some extent, his start. Mr. Heagey spoke of a man who began at the top and failed. I have a friend who started at about the same time, but who had means, and he has means today. In the other case, it may have been the fault of the man and not the fault of the business.

Mr. Robbins: I do not want to leave the impression that I think it proper to start in with cheap cattle. I think a man makes a mistake when he does that. I spoke of the place the cheap animal occupies. A man often starts with cheap cattle, gets interested in the business, and after a few years makes a new start with good cattle. When we started in the business we bought some cheap cattle, but after a few years we sold them all off and started again with good cattle. I think that is the history of most of the breeders of the United States.

A telegram from Mr. Lockridge was read by the Secretary, stating that he was unable to attend the meeting on account of illness.

President Bowen: Professor Skinner, of Purdue, asked me to read a communication to the Association. I presume it will explain itself.

The Secretary read the following communication from Professor Skinner:

"Dear Sir—There is a movement on foot to organize a State Live Stock Association which will include all breeders' associations (yours among others) in Indiana.

"I am enclosing you a statement which briefly explains the object and advantages of such an organization. Will you kindly bring the matter before your members, and if they approve of such an organization, appoint a committee of three of your most active, wide-awake members to meet with a similar committee from other breeders' associations for the purpose of organizing an association which will be State wide.

"Very truly yours,
"J. H. SKINNER,
"Animal Husbandry.

"THE NEED OF A STATE ASSOCIATION IN INDIANA.

"In comparing Indiana live stock organizations and interests with those found in other States, one is forced to the conclusion that the State is not only behind others in such matters, but that live stock men are not taking advantage of their possibilities and opportunities.

"In many States there is a wide-awake organization known as the State Improved Live Stock Breeders' Association, which brings together under one constitution and one set of officers all of the different representative breeders' associations, thus uniting their interests and giving them greater force and power in promoting live stock breeding and improvement in the State.

"Such an organization is not the representative of any one class or breed of animals, but includes all of the breeders' associations of cattle, hogs, sheep and horses in the State, and sometimes the Corn Growers' Association. It does not, however, do away with these different associations, as they have a place and are desirable for the good of the various breeds and interests. They would still exist as before and would have their own officers, and some time during the annual meetings would hold separate sessions.

"Annual meetings are held sometimes at one place, sometimes at another. Broad topics of general interest to all live stock men are taken up by practical men of large experience; men like Henry, Curtis, Jordan, Mumford, Armsby, Shaw, Kerrick and others, who discuss questions of the greatest importance and interest, such as feeding, breeding and management. Free discussion is engaged in; the program is arranged so that each of the various interests represented, that is, cattle, hogs, etc., have a place. Frequently one evening session consists of a banquet, which promotes acquaintance and good fellowship among breeders. Most of the State associations have a legislative appropriation which takes care of the necessary expense of the Secretary in securing the best speakers, publishing and distributing among the members an annual report that includes all addresses delivered before the association. This report is afterward embodied in the State Board report.

"A State Live Stock Association in Indiana would have the following advantages:

"1. It would unite the live stock men in a common cause;

"2. It would give them standing and much greater influence in furthering live stock interests;

"3. It would enable them to secure the best authorities in the United States to discuss before them topics of greatest importance;

"4. It would bring breeders in touch with one another, and promote good fellowship among them;

"5. It would encourage young men in the live stock business;

"6. It would give them influence with the State Legislature to secure needful legislation and appropriations for live stock interests."

President Bowen: You have heard the statement, gentlemen. Do you desire to take any action upon it?

Mr. Christian: I move that a committee of three be appointed by the chair to meet with the committees appointed by the other associations.

The motion was seconded.

Mr. Strange: It seems from the reading of the paper that the separate organizations are expected to hold their identity and hold their meetings as heretofore. Am I correct in this? As to legislative appropriations for this special organization of stock growers of the State, I don't understand in what way we stand in need of such an appropriation. I see no way in which it could be used. We have no disease in the State to take precautionary measures against. I think the stock business of the State is self-supporting, and the stockmen of the State at the present time are able to represent their interests without any appropriation from the Legislature.

Mr. Gartin: I did not hear of this proposed organization until this letter was laid before me. As he explains it, each organization is to remain separate and distinct, and each is to hold a meeting as at present. The object of the organization, however, is to gather together all of the people interested in all these subjects. We can then employ good authorities to talk on the different subjects, and we can get them at a much less cost to each organization.

President Bowen: You need not be afraid of doing away with this organization. Just as long as this organization can find men who are willing to assume the responsibilities of the Association, and just as long as the members are willing to pay in money enough to defray the expenses of the meetings of the Association, and just as long as the members of the Association will come to these meetings and participate in the discussions as they have this afternoon, just so long will this Association be in existence, and no longer, regardless of any other associations.

The motion before the house was adopted, and the President appointed the following committees to confer with like committees from other associations on this subject brought up by Professor Skinner: W. S. Robbins, Mr. Donley and Mr. Christian.

The Secretary read a letter from the secretary of the National Live Stock Association, notifying the Indiana Shorthorn Breeders' Association that they were entitled to six delegates to the National Live Stock Convention to be convened in Portland, Oregon, January 12th to 15th.

President Bowen: If any one who is a member of this Association wishes to attend the meeting in Portland, he will be appointed a delegate. It carries with it paying $5 to the Association. If any member wishes to go to Portland and would like to be a delegate, I shall appoint him.

There is one matter I have had in mind for some time, in fact, ever since I saw the magnificent show buildings or pavilions on the Illinois State Fair grounds and the Iowa State Fair grounds. I have been thinking how we could secure such a pavilion for our State Fair grounds, to be used by exhibitors at our State Fairs who show live stock. We all know that the State Board of Agriculture has a large debt, and from that source it would seem at the present time almost impossible to expect the erection of such a pavilion, although I am firmly of the opinion that it would pay for itself within a very short time. As you all know, our State Fair is nearly always blessed with stormy weather, which keeps a great many visitors away. Just how to go about getting this building, I can not say. If we could get our Legislature to appropriate money for this purpose, I think it would be a wise thing for them to do; but that would cause a delay of at least a year. I have considered this subject for some time in all its phases, and have tried to study out some way by which we could secure that show pavilion. We are all interested in the State Fair, and every breeder of Shorthorns, whether he exhibits or not, is interested in it. If by some means we could get every farmer in the State of Indiana who is interested in this subject to contribute a specified sum—not a large sum, not to exceed a dollar—we could erect on the State Fair grounds a building that would be a credit to the State.

Mr. Robbins: Do you know the approximate expense of one of those buildings?

Mr. Bowen: The Illinois pavilion cost about $40,000 in the first place. This year they made an addition to it. I would say that that building could be built as it stands now for $60,000.

Mr. Robbins: We have ninety-two counties in the State. That would take about $500 out of every county.

Mr. Bowen I would guarantee to raise $500 in our county.

Mr. Robbins: I would guarantee to raise it in our county. Right here now is a matter for your State association. This is a matter that would be of interest to all, or at least in which all cattle and horse breeders would be interested.

Mr. Christian: The way to get at it is to get this Association of all the breeders. They are all as much interested in this matter as we are.

President Bowen: It might not be a bad idea for you gentlemen to go before the committee and say: "We will join you if you will give us the pavilion."

The session was then adjourned.

SECOND SESSION.

The second session of the Indiana Shorthorn Breeders' Association was called to order at 7:30 p. m., by President Bowen.

President Bowen read a letter from Mrs. Virginia C. Meredith, in which she said that owing to a conflict of dates and a misunderstanding as to the time of the Indiana meeting, she would not be able to be present.

President Bowen: Dr. Quick is now present, and we would like to hear the paper that was omitted at this afternoon session.

Dr. Quick: Your President has said that you would like to hear me read a paper. I am afraid you are going to be disappointed, because I have been unable to prepare a paper. However, I may be able to say something that will interest you. The subject assigned me is, "Why I Became Interested in Breeding Shorthorns." It may be hackneyed to say that the old year is gone and that the new year is on. I once heard it stated that it was a queer state of affairs that would cause the official in charge of the palace of a king, where the old king might be lying at the point of death, and the populace had gathered around the palace anxious to hear of his condition, for that officer to come forth on the balcony and announce to the people, "The king is dead," and then after a quarter of an hour the same officer should appear in the same place and say, "Long live the king!" The king he alluded to, of course, being the new king.

It is about the same way with the Shorthorn breeder; the old herd has been dispersed and the new herd has been started. Most of you present know that a few years ago we sold our farm and dispersed our herd. The next spring we started a new herd. We gathered together just what we cared to select of the blood of the herd we had dispersed. It is a pleasing thing to realize that one is in a line of business he feels justified in following; that there is a sufficient return for following that business; that there is enough pleasure in it or that the hobby is sweet enough for him to wish to continue it. We feel justified in continuing in the business of breeding Shorthorns. It is said that the majority of men in this country, when they reach their majority, are either Democrats or Republicans according as their fathers have been Democrats or Republicans. Now it does seem that the sons who follow their fathers in a rural occupation follow very closely in his line. If the father is a horsebreeder the son is apt to continue in that line; if a cattle breeder, he is apt to breed the same class of cattle. The fact that I am breeding Shorthorns in association with my father and two brothers would indicate that my father has had great influence in first directing my attention and my love to that class of cattle. There is still another reason, which reason also explains why I am now interested in that line of breeding. That particular cause is one that interests everyone of us—the pocketbook. If you are in a business you can get satisfactory returns out of, you are apt to stay in that business. Such has been the business of my life in relation to the breeding of Shorthorn cattle. I believe the vicissitudes of cattle breeding are not greater than any other vocation commonly followed. In fact, I do not believe they are as good, especially if you are breeding Shorthorns. Even if there were Hereford breeders here, or breeders of any other class of cattle, I would naturally advocate the good old red, white and roan, because I believe in them. As I said before, there are perhaps less vicissitudes in breeding Shorthorn cattle than in breeding any other class. It is true that we sometimes buy at very high prices and fail to realize on those particular animals, but that is true of any undertaking or business, it matters not what it is. It is but a short time since the Bates blood was considered the strongest. Time passed along until this condition of affairs changed with the particular types of cattle, and the type of cattle that pleased the people was that type which matured early and were good feeders. This caused the introduction of Scotch cattle into this country. These cattle commenced coming to America, and by the introduction of this blood into the Bates herd you all know that the Shorthorn of the United States were greatly improved. If we could get from the fountain head the pure Scotch blood, that would be considered the acme of our desires. If we had a pure Scotch bull and our herd was American, the offspring of that herd would be half Scotch. We know that frequently sales have been advertised as all Scotch. I remember an advertisement that appeared in the

Breeders' Gazette a year or two ago of the sale of Scotch cattle. People went there to buy bulls to put with their herds. This was done with a view of bringing their herds up to the top notch. Perfection was what we sought, and what every breeder seeks. It matters not whether it is in the breeding of dairy cattle or beef cattle, we all want perfection. I think there is a possibility of a man going too far in his use of certain lines of blood. While it may be possible to go on and further develop the herds, at the same time we must be very careful in doing this or we will go a step too far, or make some mistake in our breeding that will cause the herds to retrograde instead of go on and develop. We should study more than ever before the mating of our animals, and not cause them to breed less valuably than they have been breeding. It is a great study and an interesting one. The question with me has long been a study from the standpoint particularly of the condition in which the herd should be kept for the best breeding purposes. I believe that is a question with all of us. I think many of us go on and develop animals for the show, but I think we often impair the breeding ability of the cattle we have in our herds by doing so. I think this is more frequently the case with the females of the herd than with the males, providing the male that is developed in this way is given sufficient exercise all the time. I do not know that all of you feel as I do, but I know some of you do. Some of us feel that the breeding and mating and selection of our herds is one of the most interesting matters that come to us. One of the greatest pleasures I have is studying the breeding and lineage of our herd, and determining what kind of mating should be made. I think there is too much carelessness in the mating of our cattle. We feel that it is all right if we have a good bull, one that has cost enough money to assure us he is all right and is a good individual, and so we take him and breed him to every cow on the farm. That is a mistake. We may have a young bull on the farm that may be more advantageous to breed to cows of some kinds than the regular bull. If we send our cows to a bull that suits us and that we think will make the proper mating with our cows, it will be to the advantage of the entire herd. Of course, we can not all keep four or five bulls, but it stands to reason that if we have four or five types of cows it is not advantageous to breed them all to one bull. Of recent years an improvement—considered so, at least, by a great many Shorthorn breeders—is being made by the selection and careful mating of the animals in the herd. What can be done in this line is illustrated in the development of the Polled Angus breed, in other words, the developing of a breed without horns. We all know about this, and it is not worth while going into details. I simply call your attention to it. This is brought about, how? By a careful study of the selection and mating of the animals without horns, or with very small horns. I am not here to advocate that which a great many think is not the best thing to do, but if we can do that, if we can breed these horns off and develop the cattle to suit ourselves in the matter of horns; if we have taken the long legs off the Bates cattle, then what may we not do by taking certain types that are satisfactory and mating them with certain types of bulls that are satisfactory, and if the result gives you the right kind of offspring, continue in that line. Now it sometimes happens that you may get your ideal of a calf from a certain favorite cow and a certain bull; but perhaps that same cow has never done just what you thought she ought to do before. That being the case, you are not sure it is because of that mating but you have reason to believe so, and when you try it again and find the success repeated, you are sure it is because of the mating. A half hour's study of your herd at any time will probably show you many mistakes that have been made. I know that from a study of these things, not only in our own herds, but from studying the herds of agricultural colleges in Colorado and Missouri, in both of which places I have been located. I know you can control, to a large extent, the kind of calf you are going to get by a proper mating. I don't know that I can say anything further along the line of my reasons for being in the business of breeding Shorthorns, but I will say that the reason I continue in it, is because it is profitable. I was raised in this business, and there is no business I have ever been engaged in that I like so well as the breeding of Shorthorn cattle. Of course my early life naturally inclined me that way. I was born and reared on a breeding farm, and my father before me was reared on a similar farm, for his father was a Shorthorn breeder. I believe a great deal depends upon the way a boy is started out; I think that determines largely what course he will follow and what he will give the greatest attention to in after life. I think also that his success will depend largely upon whether he is started in the right line or not, and whether he devotes himself to the business in which he has had his early training. If he is in the Shorthorn business and can adhere to that business devotedly, I believe he will succeed. I belive there is no other line of stock that will give as great returns with proper handling, taking one year with another, as the breeding of Shorthorn cattle.

I am sorry I did not have time to give you a cut and dried paper, but have given you the best I could in an informal talk along these lines.

President Bowen: Sometimes a man makes a better extemporaneous speech than if he writes it. I know we have all enjoyed Dr. Quick's talk.

The next paper was to have been read by Mr. Lockridge. We know from the telegram read here this afternoon why he can not be present. However, we should like to hear from Mr. Robbins, who is on the program to lead the discussion on this subject.

Mr. Robbins: I shall answer that by saying we should all do all we can for St. Louis. The record of Indiana in leading shows has been such that we can not afford to do anything but put our best efforts forward for the show that is to be made in St. Louis this year. Indiana has been looked upon as a center for good Shorthorn cattle. I think we get our share of the good buyers from a distance for Shorthorn cattle, and I think the principal reason why we get these buyers is because we have had the best at the shows. St. Louis offers another opportunity to show the best we have, and it only remains for the Indiana breeders to take hold of the matter properly to make another forward step and add to the reputation we already have.

Dr. Quick: The commissioner in the department of the dairy Shorthorn classes is quite active now in going over the country looking for dairy Shorthorns. He has probably visited a number of your herds. He has visited ours and has made a selection of three animals there, and if they come on all right he thinks he will be justified in sending them to the show. We, ourselves, have not thought much of making any other show, but he was so earnest in his request that these cows be sent that we intend to comply with it. I believe we should all do what we can for this show. I believe we should give some special attention to the dairy show. We take no little pride in the fact that the Shorthorn Durham is a good breed for the dairy. I know one gentleman who has received large returns as a result of his successful showing at the World's Fair and the winning of two or three prizes with good representative dairy Shorthorns. None of us can lose anything by helping this show and making an exhibit. We may go there and not get a prize, but we will come out ahead in the long run simply from the fact that we have made an exhibit.

Mr. Tom Christian: I think we should all fix up our best cattle and show them there. We can not lose by this even if we do not win any prizes. If we do not go out and show people what we have they will never find it out.

Mr. Hadley: I don't like to hear people say, "If you don't win anything." I say that Indiana is capable of taking the very cream, and all that is necessary to do it is to put forth a little extra effort to bring back from St. Louis the very cream of the premiums for Shorthorn herds. We have herds in this State that will do that if they are taken there. I like to see a spirit of "We are going out there to get a piece of it."

President Bowen: I presume the gentlemen are a little modest when they make these statements.

Mr. Quick, Sr.: I am a Hoosier; I was born in Indiana and I am proud of it. I feel as though Indiana is pretty near the center of the universe. I have traveled a good deal over the United States, have been in most of the States of the Union, and I always think when I get back to Indiana that no other place excels it. I don't think any other State has better Shorthorn cattle than Indiana has. I am one of the pioneers in the breeding of Shorthorns in this State. At first, we used to have to go to Kentucky for our Shorthorns. I remember hearing old Uncle Jerry Woodruff say that would probably always be the case because the wealth was there, the blue grass was there, and there were other things that could not be approached in this State. I said I thought he was mistaken. Today Kentucky is coming to Indiana for Shorthorns, and they have been doing it for years. They are also coming here from Illinois for these cattle. This shows that we are the hub of the universe, as far as Shorthorn cattle are concerned. Our breeders and exhibitors have been carrying off the ribbons from all the States around us. This proves that we have the best stock, and that we know how to breed and feed and take care of them. I have no fear but there will be a big Indiana exhibit at the St. Louis Fair. There ought to be, and I feel that there will be.

President Bowen: Of course you have not forgotten that the seed that started the blue grass pastures in Kentucky came from Carroll County, Indiana, or if not from Carroll County direct, it came from Battle Ground, which is near there.

We will now hear Professor William Hill, of Chicago University, on "My Experience with Ensilage."

President Bowen: Mr. Hill is a breeder of Shorthorns, and has a stock farm near Carthage, this State. Chicago has come to Indiana for its professors, as well as for other things.

Professor Hill: This is the first time I have had the pleasure of meeting with you, and I am afraid that what I shall say will not carry the weight it would if I had been able to conduct my experiments in a more systematic manner. I have been farming by proxy for some four years. Up to date I am still under Mr. Bryan's definition of an agriculturist. I am an agriculturist instead of a farmer. His definition is that an agriculturist is one who makes his money in town and spends it in the country, and a farmer is one who makes his money in the country and spends it in town. Up to this time I have had to make my money in the University. Like Dr. Quick, I get a good deal of pleasure out of the breeding of Shorthorns. I got into the business, in a way, accidentally. The problem of retaining soil fertility is a problem that appeals to me. My wife happened to inherit some land, and that land was not very productive under the ordinary tenant method of farming. Although it is good land it had not, under the tenant management, yielded more than one or two per cent. on the investment. Five years ago I undertook the management of the land. I began with a small herd of dairy cattle. I had some Jerseys and some Shorthorns. I kept record of the milk produced by both, and found for a year that my Shorthorns produced fifty per cent. more milk than my Jerseys. I was selling milk by the quantity, not by the butter fat contents. I made quite a search for dairy Shorthorns. I wrote to a great many breeders asking if they had any Shorthorn cattle for sale, and asking for bulls of the milking strain. In only one or two places did I find any accurate information in regard to the dairy qualities of the cattle. As the dairy business did not prove very satisfactory or profitable, I decided to go into the Shorthorn business and let the calves do the milking. It was while I was in the dairy business that I became interested in the question of ensilage. I think very likely if I had gone into the Shorthorn business in the ordinary way I might have done as most of you have done in reference to the silo—done without it. As a dairy ration I think silage is particularly desirable. As we had the silo when we began the Shorthorn business, we naturally used it, and it is the results we have obtained by the use of silage I am to speak of this evening. I shall speak very briefly on the subject, and merely refer you to the best literature available on the matter of construction of silos. There is a bulletin or two published by our State, another by the Wisconsin station, which I think will be sent to anyone who will pay the postage. These bulletins give very full accounts of the cost of construction, the different kinds of construction and the results obtained. There are two problems to be considered, one of which is the initial cost and the other is the durability of the silo. The two kinds most commonly used are the square silo and the hoop silo. Twenty years ago or more when we first constructed silos they were square. There are two things necessary in making a good silo, or perhaps I might say there is one principle and two ways of conforming to that requirement. The essential requisite is the exclusion of the air. The process is precisely that of canning fruit. You must take your corn or sorghum at the stage when its feeding qualities are best and put it in an air-tight compartment and keep the air away from it. When you take it out for feeding it is in about the same condition as when you put it in the silo. The two methods by which you practically exclude the air are by making your silo deep and round. If you make it square there will be places at the corners where the silage will not pack sufficiently to exclude the air, and you will always find silage in the corners that is spoiled. If you make it round it is easy enough to make it strong enough to withstand the pressure, and there will be no spoiled silage in the corners. Make your silo round and make it deep. The stave construction is a good one. The first silo we built has been filled four times, and shows very little signs of decay, and there has never been any appreciable loss in the silo. A little air will sometimes get down next the wall, and in such places there will be a little mouldy silage. Our silo is forty feet deep and twenty feet in diameter. It will hold forty acres of corn. The silage is better towards the bottom than at the top. We have always begun feeding immediately after filling the silo. We cut the feed and carry it to our cattle in the summer time, and feed them out of the silo the rest of the time. We have a little pasture, but not a great deal. The expense of a hoop silo is not very much. Ours is built in the center of a barn, and did not cost over $150. We built one 14x30 and one 18x30 this fall. The expense of building a silo that will hold one hundred tons will not exceed $100. For a silo that will hold 300 tons the cost will not be more than $150. The only difficulty with a large silo is that it makes necessary a large herd. You must have a herd large enough to feed off one layer of silage every day, especially in warm weather. A silo 20 feet in diameter and 40 feet deep has fed for us a herd of fifty or sixty cattle for eight or nine months in the year. We usually feed out of the silo from the first of September until June. Our method of feeding is this: We run a corn binder and cut the corn. Sometimes we have bound it, sometimes we have not. If you don't bind it you will save the twine, but we think we save enough labor handling it to pay for the twine, so we now bind it. We begin to cut the corn at the time it will make the best fodder. Get the ears as ripe as possible, and still allow the leaves to retain enough of their succulence to be palatable to the cattle. This fall we were late in filling one silo, and filled the last of it from the shock, so had to put a good deal of water on it. Even this is preferable to ordinary shredded corn. We have tried various stages, from the milk stage to the shock stage, and our experience has shown that the best time to put it in the silo is when the corn is ready for the shock. We cut the corn with a binder. We have three wagons in the field at a time, one man to each wagon and one man extra in the field and one man to feed the machine, making a force which, with the fuel and other expenses, costs us about $25 a day. We have filled the big silo in seven days. If we fill it in that time the cost is about sixty cents a ton. I think with a good force and everything going well the silage can be put into the silo for fifty to sixty cents a ton on our farm. Some men may do it cheaper and some may make it cost more. We hire everything done and pay $1.50 a day for labor. Our first experience with silage was in feeding dairy cattle. We had the dairy herd only a year after we built the silo. We got very much better results and got a better flow of milk, and our expenses for bran and other kinds of feed were considerably less by this method of feeding than any other We had eight or ten Shorthorns in our dairy herd. One of these cows I bought at a sale on Mr. Cooper's place. She was ten years old when I bought her, a heavy milker and very thin. We fed her everything we could think of for a year and a half, and she did not get much fatter. The next year when we fed her all the silage she could eat she got fat and is in good condition now at fourteen years old. She has brought a calf every year and this year brought twins. I don't know whether that is due to the silage or not. The experience in which perhaps we are most interested is in connection with the herd we have at present, and which we bought two years ago. I bought a herd of twenty from Mr. Robbins.

You know if I got them from him they were not starved, in fact, they were in very good condition. I think two of the herd had been in their show herd. Seven or eight of them were imported heifers. They were good cattle and were in good condition when they came there. In the winter some of them began to lose their hair and were not in good condition. I think most of the cattle we got did lose their hair before spring that year. Six of the cows were in calf, and some of them were due to calve soon after we got them. We had had practically no experience with Shorthorns, and were anxious to do the best we could, so we got advice and direction about them. We had heard that silage was not a safe food for cows with young calves. We thought we would take no risks, so we did not feed the cows that were due to calve with the silage, nor did we feed any of the cows silage until their calves were several weeks old. We lost three and raised three very good calves out of the first six. We thought we could not do any worse on silage. The bull was not very well, either, and did not eat well. Then we began to feed them all silage, and they did very well. Since the first year we have had forty-six calves dropped on the place, and have raised forty-three of them. The cattle have all been fed on silage for eight months in the year. Last winter we did not have a single cow shed her hair until springtime. Mr. Robbins was there a number of times and can probably tell a great deal more about the condition of the cattle than I can. The cattle are in good, healthy, thriving condition all the time. We feed the cows about what silage they will eat, and about what oats and clover hay they want. When they are nursing their calves we feed them half a gallon of bran and a half gallon of gluten feed a day and keep them in good condition. For a couple of weeks before calving we cut out everything but the silage and a little oats and oats hay, and for a week or two after calving we don't give them any silage, but feed them oats hay and bran, and we have not had any trouble with them.

Mr. Quick, Sr.: In what shape does your feed go into the silo?

Professor Hill: It is cut up into lengths of a quarter of an inch. We have a machine to cut it.

Mr. Quick, Sr.: Can a man keep more cattle on a hundred acre farm by using a silo than by not using it, with the same amount of tillage?

Professor Hill: I have sixty head on one hundred acres. I expect to keep one hundred head on one hundred acres. Of course I shall buy gluten feed and bran, but I expect to raise the hay and roughage and the corn for the hundred head of cattle on the hundred acres.

Mr. Strange: You speak of three out of the first six calves dying. What season were they dropped?

Professor Hill: In February. We had ten in January last year. I don't think the calves were killed by the silage. They had a sort of calf cholera, the white scours. Two cows had calves before the disease appeared. It is a contagious germ disease. The germ enters the navel soon after birth, and within twenty-four hours the calf is dead. These three calves died before we knew what was the matter. There were two other cows about due, so I went down there and thoroughly disinfected the stable and put them in another barn. We have had no cases since.

Mr. Busby: I think the cost of filling a silo can be very materially reduced from the figures you give by judicious combination in a community. I have a silo, and by combining with my brother and a neighbor, we put it up for less than you do. By combination we are able to fill our silos at a very small expense outside of the ordinary help on the farm. We fill a silo of seventy-five tons in one day. Last year I raised about two bushels to one I raised on my farm this year, and yet I am wintering more cattle now than I wintered last year, and at this time I have more hay and corn in prospect than I had a year ago. This is on account of the silage. With but about half the yield of corn, I expect to come out as well as I did last year, and I have a few more head of cattle. I did not have the silo last year.

Dr. Quick: In feeding from the silo, stress ought to be laid upon the question of dry feed to go with it. My first experience with feeding silage was with pea silage in Colorado. We also tested alfalfa and clover hay. Unless you feed some dry feed—and it is not wise to have that always bran—it should be richened up with corn meal in order to keep the bulls in proper condition. We usually feed grown animals about fifteen or eighteen pounds of the silage. They will eat more than this, but you can soon get them so they will not injure themselves, and can give the silage to them ad libitum, but it is not advisable to do so for four or five weeks. When they first get the taste and like it, the appetite is abnormal. They will overeat a while and then perhaps reject it. This, however, is only for the first few months.

Professor Hill: At first we do not give them all they will eat, but we have never given silage to an animal that has not taken to it greedily. We allowance them at first and keep on increasing the amount.

Mr. Busby: I notice that if I am a little negligent about salt, they get a little off on their silage feed.

Dr. Quick: We salt the cows giving milk once a day.

Professor Hill: You can mix the bran or meal or any feed you are giving them. I think they like it better.

Professor Skinner: How many men here are using silage on their farms? It seems to me it is a significant fact that the Shorthorn men are discussing the question of silage. There has been a great deal of discussion on this subject among the dairy men, but I think it is a new thing for the Shorthorn breeders.

Professor Hill: For one who has a small farm and wants to handle a large number of animals there is certainly no method of feeding which is so economical and which will permit the handling of such a large number of animals on a limited acreage. We use the silage at the university. We find it particularly useful in the summer season. Our blue grass pastures burn out about the middle or end of June, and from that time on we must feed either green feed or silage. I have felt that we could not possibly get on without silage.

Dr. Quick: For several years we have fed more or less blood meal, and find it very advantageous for calves. We always embody some blood meal in calf feed. We have fed it this fall in connection with silage. Professor Hill's farm and ours are located but a few miles apart, and we bought a thousand pounds together and divided it up. We both found it very advantageous. Now we feed it to everything that gets silage. We believe it is a magnificent thing for calves in particular, and for the whole herd when they are being fed on silage.

President Bowen: The next topic is taken up by one who certainly can give us some valuable information, having bred the second prize cow of the International Exposition, and one the judge thought possibly might just as well have stood first as second.

Mr. Cotton: I feel as though I could tell you very little about this business. I am not very old in the breeding of Shorthorns. I did not have time to prepare a paper, so my off-hand speech will be very short. As far as our State classes are concerned, I think they are very beneficial, not only to a young breeder like myself, but they are a great thing for everybody. I feel that I have received benefit by showing in our State classes. I showed last year and did very well, I feel as though this is something that should be pushed to the front. While we hold State Fairs here we should have State classes. I do not know that I can tell you gentlemen much about breeding Shorthorns. There are older men here who can talk much more interestingly than I can. I am proud of the fact that I am in the Shorthorn business. Like Dr. Quick, I love it because I was born and reared to the business. My father was a breeder, and I expect to stay in it permanently. As for showing cattle, my father once told me he admired my nerve, but not my judgment. I went out with whatever I had and showed them wherever I could. I am very proud of the fact that I bred Happy Valley.

Col. Wallace: I am in favor of State classes. From the standpoint of a State Board member and from the standpoint of a member who wishes to secure attractions for the fair, I am in favor of State classes. You must encourage the young breeders, and you can only do it in the

State classes. Mr. Cotton's father said he admired his nerve, but not his judgment. I don't know any class of business men I have come in contact with that have less assertion than the breeders of beef breeds of cattle. You have a good business, but like all good things, you must push it, and you can do this in a nice and quiet way through our State classes. It is one of the greatest educational opportunities that is presented to you. You can begin at the county fair and come to the State Fair. You ought all to come in and try it with one or two or three head of cattle, or as many as you can fit. I say it is a very great thing for Mr. Cotton to go to Chicago and meet with the success he did. I saw him there, standing with Robbins Brothers and old show men of that class, and I was proud of him and proud of the State because we produce that kind of stuff here. Now about St. Louis. You can not all go there. I can tell you what you can do, and you can get a great deal of reputation for your cattle. We have better beef cattle in Indiana—not more of them—but we have a better grade of beef cattle than any State in the Union. There isn't a lot of breeders in the Union that will compare with you as a class. You are live, up-to-date, energetic, progressive men. There are men here who, when they go out to buy animals, are not stopped by the price. You are improving your breeds faster than any breeders I know of, and I say to all, go to St. Louis. Don't expect to sweep the deck, but show your animals there. You will widen your acquaintance by doing so, you will meet the best breeders in the United States, you will learn their methods and learn to improve your own. It is an educational opportunity of great value. Next year is going to be a very trying year for the State Board of Agriculture. I was not a member of the Board at the time of the Chicago World's Fair, but Indiana gave a State Fair that year and lost eleven or twelve thousand dollars, and it is a very grave question whether or not we will give a State Fair this year. Located as I am here in the city of Indianapolis, and with the business interests of our city to look after, I am in favor of holding it, even if we do face a loss; but at the same time I want you men who can go to St. Louis to take your cattle there. I believe if we hold the fair here we can get young men like Mr. Cotton to come with two or three head and show them. As far as Indiana is concerned, I believe we will get a lot of exhibitors. I think the competition will not be of a kind you young men need be afraid of. I tell you to hang to this State class. I hope all the breeders of beef cattle in this State will take hold of it and push it along.

Mr. Robbins: My position on the State class is pretty generally understood. If there is one thing I have worked hard for, it is this State class. I have never regretted that work, and I am in favor of going on with it. There are two things that have been brought out by this State class that I have noticed particularly. It has brought out a great many of our boys who would never have come here to enter an open class.

Another thing, it is a step in advance of any other fair in the United States. It has been an advertisement for the Indiana State Fair and for the Indiana breeders. I am in favor of going on with the State class.

Secretary Gartin: I met one of the members of the State Board this afternoon, Mr. Niblack, of Vincennes, and told him I wanted to congratulate him on his re-election. I told him I felt if it had not been for him, the Indiana breeders would not have secured the $500 for this special class. I can now say the same to Col. Wallace. They worked hard to get this State class. We raised the money and divided the premiums so as to utilize the $1,000, $500 of which came from our State breeders, and $500 from the State Board. All of that fund except $30 was shown for and won. Most of the animals that won that money stood in the prize list at the International. I think the State class is a benefit to the young breeders. I made an exhibit of a full herd of Shorthorns at the Indiana State Fair in 1893, and won, as I thought, a full share of the premiums. We sold our cattle about that time, and I was not interested in Shorthorns again until the last three or four years. When we were making this class, I was in favor of making it open to Indiana exhibitors.

Dr. Quick: I think the State class is a very good thing and has done much to bring out breeders to the front.. There is no question that the State Fair has started calves to the International that never would have gotten there if it had not been for the State class. The owner takes a calf into good company and finds out that he belongs there. I think the State class should be continued.

Mr. Robbins: The best way to test this is to see how much money we can make up here tonight. There is only one drawback to this State Fair class this year, and that is, it is going to clash with the dates in St. Louis, and I don't know whether it is advisable to try to make a State class or not.

Col. Wallace: Why not?

Mr. Robbins: Simply for the fact that we want to get everything possible centered in St. Louis.

Col. Wallace: But we have also Indiana to look after. The show at St. Louis is going to be made by the old men and the men prominent in the business, and those you can count on the fingers of your two hands. In this State you can count them on one hand. What I want to do if we get this fair, is to get a lot of younger men to show their cattle here. I believe we will get our exhibitors from an entirely new class of people. I don't say that with any disrespect to our older show men, and if I have any say in the matter, I don't propose to consider St. Louis at all. St. Louis is not going to assist us in any way; she is not going to assist us in getting cattle, or in getting a crowd. We must stand right on our own bottom in this fight, and we will go out and get the cattle, and we have them here in this State.

Dr. Quick: Mr. Robbins is right; if the State Fair show and the cattle show at St. Louis occur at the same time, we will all want to be in St. Louis. I don't think the State Board would think of placing the time for the show of cattle here the same week as the show at the World's Fair.

Col. Wallace: There is a State Fair circuit. We went up to Chicago, and we found out after a few minutes that as far as Indiana is concerned, they had put us down for a date and we would have to take it and look pleasant about it, whether we liked it or not. That gave us the week of the thirteenth. Indiana day at the St. Louis Fair is the fifteenth. I wanted to have the week of the fifth, but here is Anderson, Crawfordsville and Shelbyville with county fairs. These are the questions that are confronting us now, in addition to the question of whether we are to have a fair at all or not. We can not expect a crowd during Indiana Day week; everybody will want to go to St. Louis that week. The railroads are going to give splendid rates, and they will do everything in their power to take the crowd there. We are between the devil and the deep sea. Then there is the cattle show at St. Louis. Now to come back to the original proposition I made. If I had the say-so about the Indiana Fair, I would not consult anyone. I would take the week that suited me best and go out and fight for the exhibits, and go on and give the best State Fair possible. As it is, we have been kicked around between Illinois, Ohio, Kentucky and New York until we have no home and we have no dates except what they want to give us. They want to dictate to us what we shall have. I don't see why Indiana can not hold a fair the same week New York does. But somebody said that we would get a train load of exhibits from New York. These questions have come up until I have gotten to the point where I think we should have our State Fair without consulting anybody. Why not have the date the last week in August?

Mr. Hadley: That conflicts with Ohio's dates.

Col. Wallace: And in September we come into conflict with the county fairs. One member said we were under obligations to the county fairs, because they are the fellows that elect us. I thought it best to follow Ohio and take the week of the fifth.

Mr. Hadley: Even if you had your dates, you don't know whether you can have your fair or not.

President Bowen: It seems to me the State Board of Agriculture is put in to decide upon the dates for the State Fair, regardless of what any particular individual might say. They should select the date that best suits their purpose. What shall that date be? The purpose of the State Fair is to get the largest and best line of exhibits that can be secured. Our State Fairs are not supposed to be given for any particular person. They are supposed to be given for the benefit of the citizens of the State of Indiana, so that the citizens can go there and see the ideal in any particular line. I think Col. Wallace struck the keynote when he said we ought to go ahead and set our date regardless of anybody else. But in selecting that date, we must take into consideration the number and the quality of the exhibits we can secure for the fair.

Col. Wallace: Gentlemen, I am still in favor of State classes. When I started the discussion I did not think it would take such a wide range; I did not think it would take in the World's Fair and Indiana's competition with the World's Fair. I want the World's Fair to be a success, but at the same time I am looking after Indiana.

Mr. Hadley: If it is in order to make a motion, I move you that Col. Wallace and Mr. W. S. Robbins be appointed a committee to see how much money can be raised here tonight.

The motion was seconded by Dr. Quick and carried.

The following amounts were contributed: Col. David Wallace, $50; Robbins Bros., $50; Quick & Son, $25; E. W. Bowen, $50; Oscar Hadley, $25; Frank Cotton, $25; Professor Hill, $25; J. D. Douglass & Sons, $25; J. E. Silverthorn, $25; Green Brothers, $10; James Hill (Indiana Silo Co.), $10; John W. Blades, $10; John G. Gartin, $10; Joshua Strange, $5; Isaiah Wall, $5; W. F. Christian & Son, $50; D. W. Heagy, $5; G. A. Harlow, $5; Cunningham & Welch, $25; Indiana Farmer, $10; J. M. Donnelly & Son, $15; Frank Kitchen, $5.

The meeting was then adjourned, sine die.

THIRD SESSION.

President Christian: The meeting will now please come to order. I presume we are now in working shape. I notice that the first thing on the program is how to feed a show steer from birth to three years old. I see that Professor Skinner is present, so we will begin with this subject.

Professor Skinner: Mr. President, Gentlemen of the Association: I wish to say as an introductory remark that I feel somewhat out of place here in trying to tell you how to feed a show steer, before these Shorthorn men, men who have fitted and cared for more animals than I have ever fitted, and probably know more about it than I; yet, I take a great deal of pleasure in coming before you with what I have to say. I have written my address because a man who talks about this subject of feeding a show steer is likely to make some statements that will be misunderstood. I seldom ever do this, but have done it this time in order that I may not make any statements that will be misleading to anyone. It seems to me that anything that is read is never as interesting as though it were extemporaneous, but I have tried to make this paper interesting, so I will begin with it.

HOW TO FEED A SHOW STEER FORM BIRTH TO THREE YEARS OLD.

To those who have fed and shown animals for five or ten, or may be twenty years, it may seem like an easy matter to tell how to successfully feed a steer from birth to three years old. To me the task of intelligently telling the "how" is almost as difficult as the doing of the actual thing. At the outset it may be said that for any one to tell just how to treat steers is difficult because of the great difference found in animals. Any one who tries to follow a specific prescription for feeding animals will fail utterly. Tables and feeding standards are good things, and have a place; the balanced ration is desirable, as is a knowledge of the principles of nutrition. All of these may be brought to bear in successful feeding, but no hard, fast, definite rule can be laid down as a guide to the feeder. The question of individuality must be taken into consideration; two steers side by side, of the same breed, age and weight require very different feeding. One is a good feeder, always ready to eat most any wholesome ration, contented and unconcerned if his food and surroundings are changed. He puts on flesh no matter much what the kind or amount of food. The other animal is dainty, nervous and disturbed by the slightest change of food and surroundings; he must be coaxed, he gets sulky and won't eat, his digestion is bad, and in such cases feeding becomes a great problem as well as an unpleasant task. The two illustrations are brought before you that you may be impressed with one of the most important phases, not only of feeding a show steer, but one of the first lessons a successful feeder of animals must learn, that of individuality.

To make the most out of them, every individual in a herd must be studied, just as you would study men. The feeder must understand his animals, know their characteristics, be quick to see when they are a little off, or lack appetite. In fact, the most successful man will see the symptoms of trouble and thus by proper care, avoid it before it occurs. The foregoing may be applied alike to breeding and meat stock. I want, however, to say that the feeding and fitting of show animals for the block is very different from the feeding and fitting of a breeding herd, but as the time is limited, it will be necessary to speak more particularly of steers.

The breeders of pure-bred cattle too frequently endeavor to make first-class steers out of animals that for some reason or other would not make desirable breeding bulls. The fact that such animals are castrated is commendable, but it should be remembered that it takes just as good an individual to make a first-class steer as it does to make a first-class bull. No man should expect to make a winning steer out of an animal that is not right to begin with. He may make an ordinary individual do much with the material at hand, but never equal to the superior one. It is true that there are very often splendid individual bull calves dropped that on account of color, a smut nose—or some minor point makes them undesirable for breeding purposes, and such are to be found at the front in the steer shows.

Shorthorn men will find it profitable to show some superior steers. They have not done as much in individual class shows as the breed deserves. At the recent International some of the Shorthorn steers were no credit to the breed. They did not represent breed type or good form, in many cases, and it is along this line that we need to work in the selection of steers.

There is only one correct type of beef animal. It is easier to say what that type should not be, than to say what it should be. We can agree, however, on certain features which a prime show steer should have. To begin with he should have good form and the best quality, that is, he should have good lines, a short head, wide forehead, strong jaw, short, well-set neck and smooth shoulders; a wide spring of rib, straight back, wide, strong loin, smooth hips, deep, wide quarters and stand on short, straight legs; his bone should be fine, hair and skin should be fine, soft and mellow with an abundance of the former. Select the low down, thick set, blocky calf with a wealth of natural flesh.

With a calf of this description, the feeder must from the beginning keep in mind the ultimate end of his animal, and unless he knows just exactly the characteristics of a finished steer, his efforts will be uncertain and may be disappointing. Having selected calves, give them all the milk they will take, teaching them to steal while young. There is no food of any kind that will quite take the place of milk in feeding show calves. The young steers should be pushed as rapidly as possible, and without any interruptions, as such will be detrimental. After three or four weeks teach them to eat oats, bran and cracked corn. Some will learn to eat oats sooner than corn, while the reverse will be true with others. If they are good doers, they may be allowed all they will eat up to five or six months, after which time, in most cases, it will be necessary to limit the grain in order to get them to take all the milk they should have and keep them on feed. For roughage there is nothing more desirable than alfalfa; good clover hay and sheaf oats are next in line. Calves under six months should have dry, warm quarters with plenty of sunlight and exercise in open air when weather will permit. During the grass season there is no better place for calves than on a rank blue grass pasture. In summer allow them to run out during the night and in a dark, cool, well-bedded stall during the day with light blanket on to keep the flies from disturbing them.

After the age of six months is reached, I prefer to have each calf have a separate box stall in order that the individual may be studied and fed according to its needs. Continue the milk until eighteen months, if possible, and in some cases longer, but as a rule, milk may be gradually taken away at this time.

On the question of water, I wish to say that frequently a good show animal is made too paunchy by irregular watering. Animals in good health should have all the water they desire, but never a great quantity at a time. Steers with a tendency to be paunchy should not be fed bulky rations, as this will increase the tendency.

In feeding a show steer one can afford to do certain things and go to much trouble that would not be profitable in ordinary feeding.

Many feeders depend too much on the grain ration, giving too little attention to the roughage. Such a practice makes it more difficult to keep animals on their feed and in many cases leads to more serious trouble. As a rule, twenty pounds of grain is a sufficient amount for a show steer weighing 1,500 to 1,800 pounds, if the roughage is properly looked after.

The principal factors in the grain ration, as we feed, are crushed corn and cob, oats, bran, shorts and oil meal. To give variety, we use cracked wheat, a small quantity of malt and occasionally some hominy and gluten meal or feed. It is our practice to feed a rather narrow ration, using considerable of bran and oats, and not to exceed three pounds of oil meal. The proportions of the different grains are varied according to the needs of the steer. A greater or less amount of corn is fed where more or less fat is desired, but ordinarily not more than one half of the grain ration is corn, and very often it is not more than a third of the ration.

For roughage we place alfalfa at the head of the list—then follows clover hay, sheaf oats, oat and pea hay, and last but not least, silage and roots. During the summer season we supplement the blue grass with green crops, such as corn, sorghum and soy beans, as it is very important to have the show animal eat as much green food as possible, so that the grain ration may be cut down. At no time should the animal be neglected, but where it is kept on high feed it may be well during the second and third summers to cut the grain ration down to a minimum, and thus require the animal to take more grass and green feed and so rest the digestive organs. Constant attention to the needs of each individual will be necessary in order that they may not lose flesh. A pair of scales is the best guide in this matter. My aim has been to put most of the flesh on during the winter, as it is much easier done then. To do this, and at the same time not overdo it, is desirable but difficult, just as it is hard to have the steer right when you want him. One should endeavor to produce the greater part of the bone and frame in the first half of the steer's life. After this time, attention should be directed more particularly to the laying of flesh and fat, as these are of prime importance when it comes to the show ring or shambles. It is easy to feed a yearling and bring him out smooth and well-fleshed, but when it comes to a two-year-old the problem is more difficult, as many steers of this age become patchy and roll or get flabby unless these points are successfully guarded by careful feeding and plenty of exercise. As the show approaches, it is generally necessary to give steers a daily walk of a half to one hour in order to give them a good appetite, harden them up and strengthen their legs and keep them from getting foot-sore. During the last three or four months the coat should receive careful attention as to grooming, washing, blanketing and exposure, as a good coat not only lends to the appearance; but covers many defects, where properly handled. These are points that can only be attained by careful study of your animals, constant attention to their needs and comfort, and even then, a man may fail in his efforts to bring his steers out in the pink of condition.

I will say that we feel pretty well over what we did with Shorthorns at the International. This has already had its effect on the university. I say it is hard for me to tell you just how to feed a steer, because all steers are not just alike and will not require the same kind of feeding. I can't say to you that you must feed so much bran and so much grain at each feeding. In my paper I have tried to mention the particular things. Some steers are difficult to feed. Ours was one of that kind. If you changed his diet it would make him nervous, yet, at the International he did fine, and he was one of those fellows that would show it if you made any changes with him, or if you changed his diet. Our steer was not in a very good condition a month before the show, but we studied feeds, the amount of exercise, etc., and paid a great deal of attention to the little points. We must give a good deal of credit to the man that fed this steer. Of course I made suggestions as to the feed and methods, and how much exercise he should have, and called his attention to several points that are too often ignored by expert feeders. I do not mean to say that we have done anything great, but I feel that we showed the right type of steer at the International—we showed the right type of Shorthorn steer, and was bred in Indiana, and fed in Indiana. We must not send inferior fellows, for good steers will sell Shorthorn cattle. I thank you for coming before me, and should be pleased to answer any questions that you may ask. I should like to hear this paper discussed. I know some of you will take exceptions to it, but I am here to defend anything that I have said.

Vice-President Christian: Gentlemen, I hope that you will discuss this paper. It is very important. I see that Mr. Luther Moorman was to discuss it—was assigned to discuss it, but he is not here, and I hope every member present will express themselves. This is something that I have been advocating for years, and if we expect to stay to the front we will have to bring out good steers. I want to hear from all of you now. Mr. Bradfute, we would like to hear from you.

Mr. Bradfute, of Ohio: Mr. Chairman, I did not know whether or not a man from another State could feel at home in a meeting of this kind; however, I am of the opinion that whatever is good for a Shorthorn steer is good for an Angus steer, and one thing that induced me to accept the invitation to come to this meeting was the very attractive program you have put out for this week. I have certainly profited from the time that I have been able to drop into your meetings, and have enjoyed being present with you. I have certainly enjoyed the paper to which I have just listened, and I think I have profited by it. I can agree with almost every word that Professor Skinner has uttered on this subject. It has always seemed strange to me that Shorthorn men with the large number of cattle they have, have not pushed the steer question more than they have. It has been my good fortune to begin with a calf that was a champion. I have a letter from John Clay in my pocket in which he says it is the best steer he has ever seen in his life. I want to say this to you Shorthorn men. There has been no work which we have undertaken which has brought as much advertising as the feeding of that particular steer. It doesn't seem to make much difference where I have gone in the past two or three years, I am asked about that calf. When I come to the Indiana State Fair—this is the first year we have missed for a number of years, we have only missed three fairs in sixteen years—but when I come over here, nine men out of ten, whether Angus or Shorthorn men, always ask about how the steer is doing. That is the main question, What is the steer doing? I want to say again to you Shorthorn men that you can't put out better advertising than a good winning steer. We now have a show where every one has a chance to show what they have in the steer line, and prove what they can do. This show was established to give good men a chance to show good animals. I want to emphasize the point made by Professor Skinner on the use of the scales. It has been our custom to weigh our steers at least every two weeks, and we always try to weigh the animals under the same conditions. If you want them to be light weight, of course you can weigh them when the conditions are right, and if you decide you want them heavy weight, of course the time to weigh is just after they have been at the water tank, but this is not the correct way of doing. You ought to weigh the animal at the same time each day, as near as possible, and under the same conditions, and in this way you can tell just what he is doing. There are times that you can not tell what he is doing. unless you weigh him. It is easy to be fooled on one of these fellows, and you may think he is getting along fine and when you weigh him, find out that you were entirely mistaken after you have made two or three weights. Some cattle are of the mincey kind and are hard to feed. We have had a few of that kind, but we don't consider it very good policy to undertake to make a winner out of that kind of a steer. Professor Skinner says that their winner was a steer of this kind, and on that account I think he deserves more credit than otherwise. It is difficult to carry a steer of that kind. Possibly a week when you think you will do great things with him will be the week when he is off and you won't accomplish a thing. I wish also to emphasize the point of exercise. I am quite sure that most steers do not receive enough exercise. It is very important that they should, especially for the last two or three months. During the cold weather especially they need exercise, for they are likely to stay indoors and become somewhat dormant. You can imagine how you fellows would feel if you were to sit in this room for about a week without getting out in the open air. I believe that when you went home you would feel pretty bad, and probably have a severe cold, or something of the sort. The steer must not be allowed to be confined closely, and must have plenty of exercise. They should have a long walk every morning. I find that a good time is in the early morning about nine o'clock, but before breakfast would be better, but I have a good deal of feeding to do and can't attend to this at that time. We must also pay attention to detail work. Everything will help something with the Judge. Every little touch that will add to the appearance will help with the Judge. A good coat of hair will cover many defects. The Judge will say if so and so, was so and so, I would have put you first, but they keep putting us down until we are third or fourth, and possibly lower than that and down below the money. Sometimes you stand twenty-fifth or thirtieth, until when you get to ten you feel as if you were getting up some. When you are this low, there are lots of good animals below you. I think I have said all I should say. I want to compliment Professor Skinner on his excellent paper, and emphasize the attention that should be given to detail work. I want you Shorthorn men to arouse yourselves. You are doing better this year than you did last, but there is still room for improvement. Your exhibit at the first two Internationals was a discredit to your name. Mr. President, am I talking too sharp?

Mr. President: No, go right on; that is good for us.

Mr. Bradfute: My grandfather was the first Shorthorn man in our country, and my father was one, and I was one until twenty years ago; until I fell from grace, I suppose. I have always been interested in Shorthorn men and Shorthorn cattle. I grew up near the home of Daniel McMillen, and always have been an admirer of Shorthorn cattle. I never leave a pen of Shorthorns but I feel as if I would like to stay a little longer and look the cattle over. You have good cattle and I think you ought to prove it. I thank you.

Vice-President Christian: I would like for some of you men to take this matter up and give us a good talk like this gentleman did. It is one of the best subjects that we have before us, and I would like to hear from all of you. Mr. Donnelly, have you had experience in feeding a show steer?

Mr. Donnelly: No, sir, not that I care to speak of.

Vice-President Christian: Frank Cotton is in the audience and is a man that has made a great success, and we should like to hear from him.

Mr. Frank Cotton: As I said last night, I should be seen and not heard. We have the cattle if we will bring them out. I am proud that I showed one steer in my life, and I expect I will show another one some time. When you talk about show steers not coming to the front, and you will have to wait another year, you will have to look out for John Sullivan, for he will be a good steer next year. I have two steers that I will feed. I am very much interested in the Professor's description of an ideal show steer, and I think this steer of mine is of the type the Professor spoke of. I have a half brother of John L. Sullivan. He looks to me very much like John L. Sullivan, but in fact he is a better steer than John was at the same age. If he finishes up good, I expect to show two steers next year, and I don't see why more Shorthorn breeders do not do this. I sold this calf of mine at the International while he was a calf, and while I sold him pretty well, I hated to see him go, but he went into good hands and will probably do me just as much good. This is something other breeders will not do. They will not sell the best calves they have. I am very much in favor of steer feeding. My father was a steer man; he used to feed steers by the car loads, but when he was feeding steers there was no such thing as an International. If there had been he would have been there with a load of steers. He was a steer man, and while I don't think I am as good as he, I like to raise them just the same, and I try to get them as near right as I can. If all of you will try just as hard as I am trying to make good steers, we will not stand behind Mr. Bradfute or any one else, because we have the cattle to make good steers.

W. S. Robbins: There is one point of general interest to Shorthorn men, and to all people who prepare steers for the International show. A great many have been taking steers to Chicago, and it seems to me that there is a disposition on the part of the buyers of the fancy steers to get them for less money than they are really worth. There is competition there in the way of selling these cattle. Mr. Clem Graves, who came from this State, took a steer to the show, and after the show was over, they tried to buy for seven cents per pound. That was the best offer that he got. He simply informed these men that he would not take seven cents, and would take the steer home before he would sell at this price. He took the steer back home with him and went to the butcher in Peru, Indiana, and got that man to buy this steer as an advertisement for his

Christmas market, and he bought him at twelve cents a pound; he took him into town and decorated him and kept him three or four days; then he paraded through the streets with a band in front, and after this butchered, and the cuts were readily sold at thirty cents a pound. The butcher started into the matter rather hesitatingly at the beginning, but after his experience he wrote the matter up in the county paper, and announced the fact that he would give twelve cents a pound for any steer fed in that county that was good enough to go to Chicago and win, and was brought back to his shop. That is a standing offer which he has made. This is the point. If the Chicago buyers are inclined to discriminate, we are not obliged to sell to them; we are not tied to Chicago. This matter might be worked up in different localities in the State. What Mr. Graves has done could be done by any man in any county.

President Christian: Captain Welch, are you still in the good work of feeding steers?

Captain Welch: No, sir, not yet this year.

President Christian: It seems to me that there are enough men, and Shorthorn men, too, who have had experience, to give us a talk. We are here for information.

Mr. John G. Gartin: I think it would be well enough before you proceed with the rest of the program to appoint the Committee on Resolutions for our deceased brethren. If this is in order, I will make this a motion, that we authorize the chairman to appoint the committee.

The motion was seconded and carried.

President Christian: I will appoint Mr. W. S. Robbins, Mr. Cotton and Professor Skinner.

Profesor Skinner: I am not a member.

President Christian: Then I will appoint Captain Welch in your place. This committee will report any time before we adjourn. The next thing on the program is "The Selection and Care of a Herd Bull," by H. H. Keim.

Mr. Gartin: Mr. President, Mr. Keim is on the program for this subject, but I have a letter from him which I will read:

"Ladoga, Indiana, January 6, 1904.

"Gentlemen—I hurried home from Indianapolis because my wife was indisposed in the morning when I left home. Her condition now will not warrant my going to Indianapolis to fill my number on the program. I very much regret this, as it has been my full intention to be present, and that idea has just been abandoned. Hoping that you may have a good meeting, and that more competent speakers may discuss my topic, I am,

Yours very truly,

H. H. KEIM."

President Christian: As Mr. Keim is not here, we must take this matter up anyhow. Mr. Donnelly, will you please give us your views in this matter of the care and selection of a herd bull. You have had some experience in selecting and caring for one.

Mr. Donnelly: I am sorry, but I have not prepared anything on this subject. I supposed that Mr. Keim would make a talk and we could discuss that matter, but I am not prepared to give any talk on that subject.

Prof. Skinner: He has a son some place here, if he has not gone out, and the son is a good representative of the father. I have had him in my classes, and I should like to hear him say something upon this question.

President Christian: Was the son with the father when he selected that herd bull?

Mr. Donnelly: Not exactly.

President Christian: Your experience is what we are after. Let's see what the son thinks of his father's selection.

Mr. Donnelly, Jr.: I certainly think that my father's selection was good. I had thought that I would say something on this subject and had jotted the points down on paper, not being able to remember them, and I will read what I have written.

SELECTION AND CARE OF THE HERD BULL.

In the first place, I would repeat a statement often made that the bull is one-half of the herd. He is one of the factors in every product and he may be more than half. This being so, the greatest care and thought must be given in the selection of a breeding bull. We must select a fine animal, a vigorous and superior breeder. It is very difficult to find a bull that fits these requirements, and in my opinion there is no point on which success depends so much as on the selection of the sire. He must have high individuality, good lineage, masculinity and bodily vigor. Individuality must be had because, as a general rule, "like produces like." Pure breeding because its presence makes more certain the operation of that law of breeding. Masculinity and bodily vigor because it has been observed that their presence increases impressiveness, or prepotency. And prepotency is the road to improvement in our herds. No selection is admissible that is not possessed of at least fair, undivised merit. As breeders we have a type of cattle in mind that we are trying to produce. Your selection should approach as near your type as possible. Be sure that the sire has plenty of room for the vital organs. An animal that is narrow and contracted in heart girth and floor of chest has no place in your herd. Also remember that all show bulls are not good breeding bulls. Some animals, while not of the show yard character themselves, are sires of prize winners. This is where an allowance in individuality must be made in favor of pedigree. Pure breeding the bull must have, and the greater the individual excellence of the top crosses the better the pedigree. Study the near parentage closely. After having found an animal that is a good individual, and has an excellent pedigree, look for signs of prepotency. It is said prepotency is uncertain, and that it cuts both ways. This is sometimes true, but with excellence in individuality and pedigree behind it, will rarely cut backwards. Masculinity, bodily vigor and constitution are present with prepotency. But we are never certain an animal will be prepotent until proven. It should be the ambition of all to breed their herd sires, but many would profit by the advice of Thomas Shaw, in animal breeding: "A sire in the meridian of vigor whose prepotency has been proved is a far safer investment than a younger sire, equally good but whose prepotency has not been proved." See great sires, study their pedigrees and their characteristics, add what you learn to what you know and you can pick a superior breeder, maybe. As to care, I would say the best is none too good for the herd bull. He is taxed more than a cow giving milk and in calf. He is not living under ordinary conditions and can not keep in condition on an ordinary ration. In experience we have found as a rule that he should be fed all he will clean up of corn, bran and oats, equal parts by measure, chopped timothy hay is fed with his grain. Roots are fed in season. We also feed hay uncut. Some animals become too fat under such treatment, but they generally lack in bodily vigor. Exercise is absolutely necessary to the best health of the sire and a pasture lot should be provided. An open shelter in this lot, so that the bull might go in and out at will, would be best. A tank, at which he might get pure water at all times would finish his quarters. But we can not have everything as we want it. If that was the case we would all have a superior breeding bull, and if we could select one every time we picked, I am sure we would manage to take care of him.

President Christian: I believe he has done a great deal better than his father could have done.

Professor Skinner: I am glad that I called on the junior; I didn't know he had a gun for us.

President Christian: I think we ought to have a very good discussion on this subject. I don't think we need to go farther for a man to bring out the points. There are a great many men in this State, and in other States, that simply throw their time and money away as well, by not putting more into a bull. This is of great importance. If you do not get the right kind of a bull you will not breed the right kind of cattle. Lots of time has been wasted in this direction. Captain Welsh, you certainly have had some experience in this direction of selecting a herd bull.

Captain Welch: Yes, I have had some experience in this direction, but perhaps you would know just as much if I would not say anything about it. One's mistakes are worth lots to them. I wish, especially, that the young men here knew of the mistakes that I have made that have cost me lots of money, and if I could tell these like Professor Skinner, or the gentleman over there, I would gladly stand here and tell you about them. I have been coming to these meetings for a long time, but I have never enjoyed a meeting as I have this one this morning. When it comes to selecting a herd bull we have troubles of our own. As the young man mentioned, we must select an animal with a pedigree. If you get one of these animals and don't like him what are you going to do? You can't sell him, for you would not recommend him to any one else. What will you do? Some of us can go and buy another. Right here I want to ask a question. What proportion of a herd is a herd bull when there are five cows? I would like for some gentleman to answer that question.

President Christian: Mr. Robbins should be able to answer that question as intelligently as any one in the room.

Mr. Robbins: I think that matter should be left with the judge. I should consider him half the herd at least. What proportion do you think he should be considered?

President Christian: If he is a good one, I am like you, I think he should be considered a half, at least. He is at the head of the four.

Mr. Strange: I would like to mention one point. If I see that the disposition of the bull is not right I will turn him down at once. I don't care what his pedigree, his individuality, or breed is. I don't want a bull with a bad disposition mixed in my herd of cattle. I saw a bull that a man paid $7,500 for; he was imported, as a high standard bull. He was paraded all over this country, but that bull took two men, one on either side of him with a strong pole and a chain to lead him out so that people could see him. I would not want a calf of this disposition; I would not want him in my herd. I want a quiet disposition in the bull I breed into my herd. I think this is very essential. I always look for individuality first. I want a strong constitution. I do not want a bull with too heavy a bone, but a neat bone, and a good constitution. Calves from this bull will be good calves. If his calves are not good, there is something lacking in the bull. He is not strong enough bred. I want a bull to carry his individuality down into the herd of his offspring so that I can see them marked plainly through the herd. I do not believe it is wise, gentlemen, to get one bull to breed all of our females to. We can not do it, I can't do it; I never could. The same way with sheep breeding. Some fellows will select a sire and breed the entire flock to him. I have never done this. I think there is such a thing as ingenuity in mating the cattle. I started in this way with my draft horses. It is not the horse that is brought into the neighborhood that got my patronage, but I looked around until I found a horse that I thought filled the bill, and in this manner I got a fine set of draft horses.

President Christian: I would be very glad to hear from anyone else that has anything to say.

Mr. Donnelly, Jr.: Perhaps I am taking more than my share of the time, but I should like to speak first in regard to what this gentleman has just said. It is sometimes hard to judge a bull by his disposition, for he may have been teased by small boys. Speaking of draft horses, they do not transmit their dispositions nearly as readily as other breed of horses. The care of an animal has a great deal to do with his disposition. It seems to me that we want a bull with a great deal of life about him. Why shouldn't he have when he is pampered like he is? Of course you can not always tell what the results will be, but I think you get a superior breed from the more lively bull.

Mr. Strange: I like to hear him talk in theory, but along the line of life he will run against practical things, and that is what jogs a fellow up on these things. I have been in this business for forty years or more, and have found just this condition of things, and I find them at the present time. Of course, we do not take scrub animals. We use only the best, and thus have our standards set high. You want to look out for the characteristics of both animals, and having your ideal in mind cross the animals that will nearest produce that. In this way you will improve both animals. This is my idea of breeding.

President Christian: If there is no other duscussion our committee is ready to report.

Mr. Robbins: Your Committee on Resolutions on the death of deceased members of the Indiana Short Horn Association, now assembled, report the following:

"Resolved, That in the deaths of our brethren, E. S. Folsom and Thomas Nelson, this Association has lost honored and valued members; their associates have lost honored and valued members, warm hearted and candid friends; the community, respected neighbors and citizens, and their families, loving, faithful, generous and devoted husbands and fathers.

"Resolved, That this Association tender to the families of each its sympathy in their hour of bereavement, and that these resolutions be spread upon the records of this Association, and a copy thereof be delivered to their respective families.

"Respectfully submitted,
"W. S. ROBBINS,
"MR. COTTON,
"CAPTAIN WELCH."

These resolutions were approved by a unanimous rising vote.

President Christian: Before proceeding with the election of the officers we will ask the members that were not present last evening to say what they will give us on this class show, at our fair this fall. We made a very good showing last fall, and ought to make a better one this fall. We want every member to feel that he has an interest in that show, and those that did not give in their names last night will please give the Secretary what they feel like giving.

Mr. Robbins: I don't think that there is any association in the State of Indiana that has any better set of officers than the ones we now have, and I move you that our old officers be re-elected, and that this be taken by consent.

Captain Welch: I second the motion.

It was unanimously carried.

LIST OF MEMBERS.

Aikin & Sons, Carlisle.
Amick, John E., Scipio.
Anthony, Geo., Cicero.
Barrows, W. F., Indianapolis.
Baird Bros., Wallen.
Baum, G. W. & Sons, Delphi.
Beals, T. E., Westfield.
Buchanan, James, Metca.
Brockman, W. F., Hartsville.
Biliter, Ben F., Huntington.
Bowen, E. W., Delphi.
Busby, T. V., Anderson.
Blades, John W., Rockdale.
Clapham, W. C., Attica.
Cotton, Frank W., Manilla.
Cunningham & Welsh, Martinsville.
Christian, W. F. & Sons, Indianapolis.
Creek & Son, Liberty.
Chapman Bros., Winamac.
Campbell, Newton, Normanda.
Crain Bros., Ashley.
Chambers, John C., Pendleton.
Clapp, Samuel B., Hartsville.
Dunbar, P. H., Greencastle.
Douglass & Son, Hope.
Dye, John T., Indianapolis.
Donnelly, J. M., Anderson.
Elder, James E., Marshall.
Eastman, Dr. T. B., Indianapolis.
Endicott, L. E., Tipton.
Ensminger, Julian, Danville.
Ensminger, M. C., Danville.
Fulsom, E. S., Indianapolis.
Gilchrist, F. H., Hope.
Goodwin, Harrison, Walnut Grove.
Grindle, John K., Akron.
Gallemore, H. J., Paragon.
Gartin, John G. & Son, Burney.
Green Bros., Farmland.
Hadley, Oscar, Plainfield.
Haines, James, Rockport.
Hammond, I. J., Greenfield.
Hammond, T. C., Greencastle.
Harper, J. W., LaFountaine.
Harlow, J. R., Normanda.
Harlow, G. A., Sharpsville.
Hailman, Ralph, Hope.
Hill, Prof., Chicago, Ill.
Heagy, D. W., Columbus.
Henderson, Jeremiah, Manson.
Hobbs, D. C., Atlanta.
Huckleberry, J. F., Horace.
Hollingsworth, W. P., Shadeland.

Hadley, William, Bloomingdale.
Holder, Mart, Hope.
Jackson, Henry, Warsaw.
Judy, S. H., Greencastle.
Kitchen, Frank B., Greensburg.
Keim, Howard, Ladoga.
Kersey, A. J., Lebanon.
Kirk & Son, Linwood.
Kurtz, Chas., Indianapolis.
Kerlin, W. F., Rockfield.
Leavitt, A. E., Vernon.
Levering, M., Indianapolis.
Long, R. B. & Son, Leesburg.
Long, James, Leesburg.
Long, James, Leesburg.
Libey, C. N., Brighton.
Lockridge, S. F., Greencastle.
Morris, Marion, Winchester.
Macy, W. A., Lewisville.
Madden, Miles M., Kingman.
McLane, C. E., Danville.
McCaslin, W. E., Franklin.
McCaslin, Geo., Trafalgar.
Mattern, W. H., Bridgeport.
Meredith, Mrs. V. C., Cambridge City.
Muller & Son, W. T., Winchester.
Morgan, W. A., Brooklyn.
Moorman & Miller, Winchester.
Newsom, Albert, Columbus.
Norvell, C. W., St. Paul.
O'Neel, S. E., Dupont.
Olliphant, G. M., Freedom.
Pate, Geo. B., Farmer's Retreat.
Pedon & Son, Spencer.
Peters, John C., Ft. Wayne.
Polk, Horace, Oaktown.
Phillips, R. H., Arlington.
Quick, S. R. & Sons, Indianapolis.
Randel, Wm. & Sons, Greencastle.
Rand, John E., Friendship.
Robbins, J. G. & Sons, Horace.
Rose, W. W., Rossville.
Robbins, Earl, Horace.
Ringer, Geo. S., Rockfield.
Smith, John & Ed, Irvington.
Sanders, J. D., West Newton.
Stout, J. O., Hollandsburg.
Smith, E. T., Ashley.
Smith, Artemas, Deacon.
Sowers, E. E., Warren.
Strange, Joshua, Arcana.
Strange, Cyclone.
Silverthorn, James E., Rossville.
Smith, H. F., Rossville.
Saunders, Jas. & Son, Anderson.
Taggart Bros., Vesta.
Thomas, G. W., Rushville.
Troup, Jacob L., Milford.
Troup, Peter S., Warsaw.
Turner, W. E., Lebanon.
Travis, C. W., LaFayette.
Tyre, J. E., Lebanon.
Townsend, J. W., Franklin.
Vanlandingham, O., Winchester.
Vinedge, Tom, Hope.
Wallace, Col. David, Indianapolis.
Wall, Isaiah, Jadden.
Williams, J. D., Vincennes.
Williams, J. W. & Sons, Briant.
Williams, Geo., College Corner, O.
Witter, Joseph, College Corner, O.
Winters & Daugherty, Greensboro.
Williams, K. H., Cope.
Wood, W. J., Lebanon.
Wright, J. V., Grammer.

PROCEEDINGS

OF THE

Indiana Angus Cattle Breeders' Association.

The annual meeting of the Indiana Aberdeen-Angus Cattle Breeders' Association met in the Supreme Court Room, State House, January 6. The attendance was very good. The meeting was called to order by President W. R. Pleak, Greensburg, who delivered his annual address as follows:

PRESIDENT'S ADDRESS.

We come together in our third annual meeting as breeders of Angus cattle, under perhaps, not as favorable conditions as we have in other years, yet by no means should we be in any measure discouraged or grouchy because we are not able to find as ready sale and at remunerative prices as in prior years. Our business, the same as all other lines of business, has its periods of inflation and depression, each usually governed by natural laws of supply and demand. The descending scale of prices received, during the year just closed, for fat cattle off our farms have to some extent lessened the inquiry for, and sale of, pure bred cattle for breeding purposes. This condition, we think, is only temporary, and will soon be succeeded by normal conditions again, and we, as Angus breeders, will be well repaid in the future by the present depression, for many reasons, one of which is that no matter what the market price of fat cattle may be the Angus still keeps just a little in the lead of all his competitors. We instance this in the International sales, where twenty-four loads of grade Herefords sold at an average of $5.96 per cwt.; twenty-four loads of grade Shorthorns sold at $5.63 per cwt., and twenty four loads of grade Aberdeen-Angus sold for $6.33 per cwt., being 37c per cwt. more than the Herefords and 70c per cwt. more than the Shorthorns. This was in open competition at auction. Again, the term "market-topper" remains with our Angus . This record serves an excellent purpose at the present time, for it interests the feeder, now sore pressed for those extra parts of a dollar on each cwt. would have helped make the ends come nearer even.

The intelligent feeder observes these facts and the result is, it awakens a desire in new feeders and breeders to have some of these black-skinned fellows, and he will seek them in preference to others. Again, another record favorable is made for the Angus in the prices obtained for sale of pure bred beef cattle at public auction, combination or otherwise. The past year the Angus made an average per head of $220, the Shorthorns an average of $174, and the Herefords an average of $172, as reported in the Breeders' Gazette. Thus they lead their closest competitors by $46 on the head. Score another one for the Angus; for while the prices of cattle are slow he has his place up in the top of column.

The conservative man will not stampede away from the cattle feeding and breeding industry, because values are not what he had heretofore received. He will keep steadily on, and many a new man will step into the Angus breeding industry because he can now secure his start at more moderate figures than during periods of high prices. This makes a widening field for sale of stock in the future, and the man long in the business can hold on to his best and weed out his kinds he does not desire to keep, and will be in better condition when normal times return to reap a better harvest of prices and offer a better quality of cattle.

The heavy receipts of cattle at the Union Stock Yards in Indianapolis, as well as at all market centers, coupled with the heavy increase in slaughter by packing houses and otherwise means that this temporary over-production is being wholly eliminated from any danger of future competition, consequently the time is very near when the other phase of our industry, the demand strong and the supply short, will quicken prices, and then the conservative man, the stayer by his business, will be the one to profit handsomely.

Our motto should be, "Stay steadily with the 'Doddies;'" though young in their introduction to this country they have proven their staying qualities as the best beef producers under any conditions of age or place.

Our organization is gradually widening. Our membership is creditable. And our State Fair specials have been each time a credit to the breed. By our organization we have been enabled to become better acquainted with our fellow breeders and as mutual help to each in our business.

Let our aim be to build up still better and closer our membership, keep in touch with each other through our annual or other meetings, and each year we can broaden our industry as a business, and ourselves as men, for no man ever comes in contact with his fellow man, either in a business or social relation, but what he learns something for his betterment, if his inclination is that way.

The subject of the assessment of pedigreed stock was discussed at length by members present. The consensus of opinion being that animals should be given in at a fair value.

O. E. Bradfute, Cedarville, Ohio, addressed the Association along the line of Angus breeding.

The election of officers resulted as follows: President, W. R. Pleak, Greensburg; Secretary, Geo. Henderson, Lebanon.

Indiana Hereford Cattle Breeders' Association.

The second annual meeting of the Indiana Hereford Breeders' Association met in Room 92, State House, Wednesday, January 6th, and was called to order by Vice-President S. L. Wright, Paris Crossing.

The report of Secretary-Treasurer C. E. Amsden, Shelbyville, was read and accepted.

The election of officers resulted as follows: President, S. L. Wright, Paris Crossing; Vice-President, Ed L. Wilson, Galveston; Secretary-Treasurer, C. E. Amsden, Shelbyville; Director for three years, A. F. Brown, Cloverdale.

PROCEEDINGS

OF THE

ANNUAL MEETING

OF THE

Indiana Wool Growers' Association,

January 7-8, 1904.

The meeting was called to order at 2 p. m., January 6th, by W. H. Thornburg, President of the Association.

The President then read the following address:

PRESIDENT'S ADDRESS.

Sheep and Wool Growers of Our Most Prosperous State of Indiana:

Gentlemen and Brothers—I, as your President, give you a most hearty welcome to this, our twenty-eighth annual meeting, and kindly ask your assistance in making this one of the most interesting and beneficial meetings we have had for many years.

As it is a custom for the chairman of our meeting, as well as others, to give an address touching on the further outlook, I will cite you to a few finger boards on the present outlook for sheep of our State and nation.

The drouth which has continued for the last two years in Queensland and New South Wales has caused thousands of their sheep to perish. Their wool sales in September show something like three thousand bales short from 1901. Here at home the large ranchman in the West has been crowded out by the tiller of the soil, till today, the long ranches are few, comparatively speaking. In the near future the sheep will be produced on our farming land. When this day comes, we will have fewer sheep but better quality, also better price for wool and mutton.

I will quote from Senator W. A. Harrit, touching on a weakness in American Stock Breeding.

"In the haste to acquire riches, we have been prone to jump in or out of breeds of live stock, according to the mutabilities of the market. when sheep for a time happened to be profitable and cattle were drugged in the price, there was an immediate inaction of cattle and an investment in sheep. When horse markets became dull, breeders could not get rid of their mares quickly enough and horses were even fed to hogs in certain Western States. Farmers could not wait for the inevitable return of horses to a profitable position in the live stock industry. They are now hurrying back into the fold, and the man who stuck to the business through rain and shine has been reaping a well-earned reward. The same holds good with the sheep, the man who stays with the business through thick and thin is the man that wins."

George W. Harshbarger, Ladoga, Indiana, read the following paper:

DOES IT PAY BEST TO RAISE GRADES OR PURE-BRED SHEEP?

From my own experience in handling grades for a number of years, and observing what my neighbors have done with pure-bred sheep, I am convinced that it is much more profitable to raise the pure-bred sheep. The outlay of money is greater when starting in pure-bred stock. One good pure-bred ewe will cost as much as 10 or 15 common grades. But after the flock is established the pure-breds will not require any more feed than a grade, but it may be a greater variety and a more expensive feed. The greatest item in raising grades is that they do not require so much care and attention as do the pure-breeds, and a greater number can be handled at a given expense. Pure-breeds are raised only for breeding purposes, and the shepherd who is the most attentive and skillful in caring for them and showing, is the most successful. In raising grade sheep there is no expense except feed and feeding, and in selling we very seldom realize more than $6 to $8 per head for ewes, and if we can dispose of the rams at from $8 to $12 per head we feel that we have made a very good sale.

On the other hand our neighbors with the pure-breeds dispose of their surplus at from $15 on up to several hundred dollars for one animal. I have owned several pure-bred rams and two pure-bred ewes, but the ewes were bought by order and were not satisfactory; they were not good individuals, and when put in a flock of good grade sheep, they were a disgrace to the flock. At present I am thinking of securing some pure-bred stock, but I want them to be as good in make-up and size as grades, and they should be better. In other words, I do not want all pedigree and not much sheep. I don't believe we can afford to raise pure-breeds for wool and mutton only, for grades are very near on an equal with pure-breeds on these lines. None of the pure-breeds in our neighborhood, and of same breed, have outweighed us in fleece, and the greatest gains in pounds I have ever noticed were in grades. The champion wether at the International Exposition was a grade, and I had the pleasure of seeing him in his stall at home at Wisconsin University. The expense in recording, etc., of pure-bred sheep does not amount to much, compared to the difference at selling time of the grades and pure-breds.

I had the pleasure of visiting this winter at a home where there was a herd of 75 pure-bred shorthorns, and the young bulls and heifers were bought out at $75 to $100 more by the time they were one year old or sooner. That was more than I had been getting for a steer after keeping two or three years, and convinced me that there was something better in reach if I would only make an effort to engage in it.

Mr. C. A. Howland: I have not been doing much in the sheep business for the past few years. I can say, however, that I have been successful when I had the handling of sheep, and can recommend it to young farmers and to old farmers if the circumstances that surround them are favorable for raising sheep. The farm on which I now live is too close to the city to make it profitable to raise sheep, on account of the dogs. The question, I believe, is—Is there more profit in pure-bred sheep than in grades? The great trouble we have with breeders of sheep is this: They think that because a sheep is pure-bred he must be saved and placed upon the market. simply because he has a pedigree. A great many of the thoroughbred animals that are put on the market are defective. But because they are thoroughbreds they are kept, the knife is not used, and the owners want a good price for them. That is all right if the animal's points are all right, but unless you have a good thoroughbred, one that will measure up all around, you are not entitled to any better price for him than if he was a grade. The pedigree is something that does not count unless the individual is there. I think this idea that because an animal has a pedigree he must be saved, without any reference to whether he is defective or not, has been a great failing among all breeders of thoroughbreds, whether horses, sheep, cattle or hogs. Because the animal may have a pedigree they put out anything that they can have registered. If you have a good thoroughbred, of course I prefer him to a grade in any kind of stock; he is superior to the grade; he is not only a fine individual, but he is a blooded animal, and as they say, "Blood will tell." You must have a good individual and then your pedigree counts. With me pedigree never counts unless the individual is good. I think the reason why so many people who have bought pedigreed stock are disappointed is because they bought defective animals. If you have a sheep that fills the bill, whether he has a pedigree or not, he is a good sheep, and you are entitled to a good price for him. However, I prefer a pedigree and a thoroughbred, provided the individual is good.

Mr. Roundtree: I seldom offer criticism without reason. The writer of the paper says it takes more feed to handle thoroughbreds than it does to handle grades. I differ with the gentleman on that point. It takes no more feed to handle a thoroughbred animal than it does to handle a grade. All animals consume feed in proportion to their weight. It takes so much feed to make so many pounds in either case, and when it comes to grade stock or mixed breeding you cannot tell where you are going to land and what the second cross is going to be. But if you have thoroughbreds you know where you are going to land. If you are breeding thoroughbred sheep you can tell nineteen times out of twenty what the offspring will be. You breed sheep for the block, and the sheep that the butcher will pay the greatest amount of money for is the sheep that the farmers of Indiana should breed. The sheep that will produce the greatest number of pounds of high class mutton with the least feeding and in the shortest time is the one to breed.

We are an association of wool growers. I did not hear the wool question mentioned in that paper. It is well to have a good fleece along with your first-class mutton. There are certain things you can do with a thoroughbred sheep that you cannot do with the grades. The prediction was made last spring that sheep would reach eight cents a pound, that lambs would bring eight dollars a hundred in 1902. I sold twenty lambs from thoroughbred sheep that were produced at Locust Grove for sixteen cents a pound delivered in Chicago. They weighed 65 pounds apiece the third day of April. I have a standing order today for 25 to 30 of these lambs for the Eastern market and I have declined it.

Mr. H. H. Keim. The Secretary made the announcement that was referred to by the last speaker, that lambs on the open market would command eight cents a pound. We were not discussing the winter lamb market. I have a friend in this State who says he gets 25 cents a pound for his lambs here in Indianapolis as soon as they weigh twenty pounds. These are exceptions, however. As I understand it, the price was not considered on winter lambs, or what we call "hothouse" lambs.

Mr. I. M. Miller: Of course the people who want to grade up their flocks buy thoroughbreds. In doing this people like to have the thoroughbreds, because they know what they will do. Many people will get the grades from this thoroughbred and think they have as good as anyone else, and will keep them. Do they know where they are going to land? They will not have anything in a few years. We should all keep in mind the butcher's block. People have complained that they could not get enough pigs from the Poland Chinas and they have crossed with the Duroc. The idea with some men is to get the number, and they will keep on until after a while they will have neither Poland Chinas nor Durocs. I like to have thoroughbred lambs to breed up my grades, for then I feel I know where I will land. That is the point we have to keep in view. The average farmer wants to breed up his flock by selecting some thoroughbred rams. Many farmers buy Shropshire rams and expect to raise as good lambs as the thoroughbred man has in his specialty. They expect their grades to be as good. and they may be of one cross, but my experience is that that will not continue unless they go higher. Many make the mistake of crossing on something else, and soon they have such a mixed herd or flock that they can not say what they have got. A few years ago we had as fine a selection of Poland China hogs in our county as could be found, but the farmers got to crossing with Durocs and now we have badly mixed breeds. I like to have hogs to follow my cattle. I find for this purpose the Poland Chinas are the best. They are not too active; they eat and lie down, while others will roam around. I am in favor of the thoroughbred, although I am not a breeder of thoroughbred sheep.

Mr. Robe: Of course there are two sides to this question, the side of the thoroughbred and the side of the grade. We can not all be breeders of thoroughbred stock. I have had better success with the butcher's block in view on the out-cross. I have started with thoroughbreds in sheep, in hogs, in Shorthorn cattle and also in horses, and yet I have universally found, in my experience, that the outcross is the healthiest, the animal I get the most profit from with the butcher's block in view; but I did not have much success in selling for thoroughbreds. I might not have had the quality of stock, but I thought I did. I have universally had the best health in the animals with the outcross. I have taken thoroughbred steers and grade steers in the same bunch, and universally the thoroughbred steer sold for the same money to the butcher.

Mr. I. M. Miller: What do you mean by the outcross?

Mr. Robe: If I should take a Rambouillet and a Shropshire and cross them I should call that an outcross.

Mr. Miller: I should call that a cross.

Mr. Robe: Take a Poland China hog and breed to a Chester White sow, and I should call that an outcross, because it is not in the same line. Take a Duroc and cross on the females you have, and I call that an outcross, and I have the healthiest animals in all of these lines, and the animals that make the best growth.

Mr. Miller: But when farmers do that and then continue to breed on is where they make the mistake.

Mr. Joshua Strange: The paper opens up a subject that is worthy of a great deal of attention. It enters into the scientific methods of breeding stock. The way the question is stated draws the contrast between the grade and the pure-bred. If we can profit by scientific methods in agriculture we must follow the laws that govern it. When we take pure-bred stock it is stock that is bred in line according to certain rules that are laid down that make them eligible to record in a specific herd book for that breed. In them we have perhaps not eradicated all of the scrub stock or blood that exists in the veins of those animals that are eligible to registry, and in the pure-bred stock what we call the law of atavism will crop out many generations after the registry is made.

Many people do not understand why at times we get a scrub in our thoroughbred flock of sheep or herd of cattle. That is simply the reason. There is a germ in the blood of the old original stock which is competent to reproduce itself. We get our grade when we come with a thoroughbred on the original or native stock. If there is anything in scientific principles in fertilizing soils to bring them up after deterioration, with the use of pure-bred sires or pure-bred mothers do we not fertilize and bring up the deteriorated stock by these crosses? If this fertilizing of deteriorated stock is good, when we get perfectly pure-bred stock where can we find any reason for saying it is not profitable to raise thoroughbred stock? Take the old sheep stock of this country, with naked legs and long wool and naked bellies. What have we made of this stock? From two pounds of wool to ten pounds of wool is what we have made. We did not have the best to begin with to make crosses and breed up. What did we do? If we had short thick wool in one sheep and long. open wool in another we blended the two and got an improvement. If we had a long-legged sheep and a short-legged sheep we went to blending again, and finally we got something we took pride enough in to breed in line. That is what pedigree is in cattle as well as in sheep. I think the only true principle to follow in growing wool or growing sheep for profit is to keep in view making your crosses as nearly pure-bred as possible, and as soon as you can, I should advise you make them all pure-bred.

The high prices that were secured for a few lambs raised out of the regular season does not apply to the general market. In discussing these questions we discuss them in a broad sense. We must look into the world's market to get rid of all our surplus mutton and wool. How can we do it most profitably, by raising pure-bred sheep or crosses? I think by raising the pure-bred sheep. We must look for a finer and higher grade of wool and a finer and higher individual all the time. I do not see why you can not raise the thoroughbreds as cheaply as you do the grades. Eradicate from your farms as fast as possible the grade sheep.

Mr. Mills, Lagrange: I have been very much interested in this subject. I come from the county that stands second in this State in the raising of sheep. There are two sides to this question we are discussing. If you are breeding thoroughbred stock, as a great many of you are, and breeding them principally for the block and for the wool, you have no advantage over myself. I am using the grades to the first cross for the market. I shall explain what I mean. If you have a grade flock of ewes and you cross on that flock a pure-bred ram, from them you will get the mutton sheep we make our money from. In Lagrange county that is the grade of stock we make more money out of than any other stock in the county. In our county there are men who feed and market all the way from one to eight cars of lambs. If you keep run of the market you will find that it is not the largest carcass that brings the most money. It is the short, blocky, nice 86 to 90 pound lamb that brings the highest price. You get a lamb to 100 or 125 pounds and it does not command the highest price in the Eastern markets, and they are the markets we have to cater to. You will find that the crossing of pure-bred rams upon Shropshire ewes will bring the best results; from them we get the blocky lambs that we sell at three different periods. If you have the object in view of making money out of your sheep, the grade lambs are just as good as the pure-bred. But don't go to using that grade lamb to produce more lambs to feed, because if you do your flock will begin to deteriorate immediately. But if you go to following up the pure-bred through and through you can not make enough money out of them unless you sell them for breeding purposes. I am in favor of improving the stock and getting out of it all the money I can.

Mr. Strange: Has there been a single example of a carload of pure-bred lambs going into the market from that section of the State?

Mr. Mills: If they go in for the block they will not bring any more than the grades; but they do when they are sold to make our grades better. I have a neighbor who breeds pure-bred Shropshires. In the last ten years I think he has not sold his lambs for any more money than I have mine, except those he sells for breeding purposes. When they are sold by the pound they go for the same money. His are pure-bred Shropshire and mine are grades.

Mr. I. M. Miller: When do you shut your lambs up?

Mr. Mills: After I put them on dry feed in the fall they should not be allowed out on green feed again, or allowed too much of a range. Some of the people up there use self-feeders. They use them for three or four weeks before they put the lambs on full feed. Some use racks and bars set up on a platform with slats through which the corn sifts and the lambs can go there and eat whenever they want to. We always have pure water for them to drink. I always feed morning and evening at regular times. Be sure that no grain is left in the feeding troughs after feeding time, but sweep it out nice and clean, for the lambs are very dainty.

A member: I understood you to say you would not use the grade lambs to breed again.

Mr. Mills: Not the grade male lambs. I use the grade ewes and pure-bred rams.

Mr. I. M. Miller, of Upland, Grant County, read the following paper:

SHALL THE FARMER RAISE OR BUY HIS FEEDING LAMBS?

This subject presents several phases by reasons of the difference existing throughout the country and State, as to the kind of farm, quality of soils adaptable to sheep husbandry and farm management.

From experience and observation in the care of sheep extending over a period of nearly thirty years, the first feature naturally presenting itself most anywhere in Indiana is, would the farmer be prepared to raise, keep and feed sheep, and does he know a sheep from a goat? That is, does he know the distinctive features of the several breeds of sheep, and that type or class the most suitable with his method of farm management, and has he the wherewith that contributes more to the profitable success for handling sheep than all else, that which is the basis and true source for obtaining the lamb and maintenance to maximum profits, even with other considerations supplemented by feed and care; in this meaning permanent pastures composed of the perennial grasses abundantly sufficient at all times to afford all, or the bulk of feed required for the health and thrift of the animal?

It is quite certain "William" G., his spouse, Nany G., and the kids, whose most sumptuous menu is reported to be in the line of sage brush, cactus, and the tid-bits from any old dump pile, would live, grow, and become erratic upon the cultivated plants of higher civilization, but the flocks and herds of the sheep, whose every synonym has been exalted from the category of legends of earliest ages down to the present for yielding fibre of finest texture and of flesh for the most savory roasts in epicurean tastes, could not be expected to take the place of his goatship by reversing the bill of fare, and expect results commendable with success.

Yet there are farmers and feeders—plenty of them—every year who put their money in sheep, expecting to raise lambs and revenue, who give them little more thought of what is rational, reasonable and suitable, than if so many goats; consequently many times lamb-feeding is more like a tortuous starving process—a dead failure.

The so-called feeding of lambs for the winter and spring market in this State has proven unsatisfactory if not an entire failure with many, and I believe mainly on account of the unsuitable conditions for maintaining the health and thrift of the too dependent little creature, made so by extreme methods not in harmony with his nature.

Consequently we may perceive the advantages or disadvantages for feeding lambs in this State during fall and winter; as in the absence of succulent feed as supplied in root crops stored and suitably prepared as the balanced ration, in lieu of permanent pasture lands with an every day run, well as in the growing season of the year.

Therefore the farmer prepared for feeding lambs would be prepared for raising them and recommend raising his own lambs, and obtaining as much of the growth and profits as possible; as in doing so, it is from nature's own best gift, so conducive to Indiana's soil and climate as a forage plant—blue grass; substituting as becomes necessary, a mixture of other grasses, fodder, plants and grain food; believing in that way the highest possible gain can be made at the least possible expense—principal growth and profit from grass.

In this way the farmer is enabled to keep sheep from year to year, and by selecting the best for perpetuating the flock to the amount necessary to maintain his keep free from disease, as more liable to incur through buying from promiscuous markets, would he attain to the ideal of both raising and feeding lambs to be disposed as muttons.

Mr. Harshbarger, Sr.: I do not wish to criticise Mr. Miller's paper, but I do wish to criticise what one of the gentlemen who discussed the former paper said. I have been crossing for forty-five years. I imported one of the first Canadian sheep that was brought into this country. I crossed him on ewes that cost me $1.50. The ewe lambs sold for eight dollars apiece. From that time on I crossed, always with thoroughbred bucks. I say cross every time, and cross with better blood.

Mr. Mills: I agree with you about crossing. I say cross, but cross with pure blood rams every time. I agree with you on that point. What I meant was that I never used the cross rams for breeding.

Mr. Cotton: I think you are using the word "cross" improperly. If I buy a graded Shropshire flock and then buy a registered Shropshire buck and breed them, it is not a cross, it is a grading up; but if I cross that buck on a Cotswold, that is a cross. I do not believe much in crossing, but I do in grading up. I have advised a number of farmers on this question. Many farmers have asked for advice in starting a flock. They asked what to buy. I always advise them to buy pure-bred bucks. Then I advise them to save the ewe lambs, but to get another pure-bred buck of the same kind and breed up.

If we use the term "breeding up" we will express what we mean much better than to use the term "cross." I have bred hogs on the same plan. I invariably save the grade sows, and then pick out the best breeders I can find. I would not think of keeping a sow that would not bring eight or ten pigs. When you get a good ewe or a good sow, hold to them until they fail.

The discussion on "What can be done for the Betterment of the Sheep Interests in our State," was led by Mortimer Levering.

Mr. Levering: We all want to know the reason why so many men have gone into the sheep business and have dropped out. For the past few years sheep have been menaced by a very great danger in the matter of twisted stomach worms, but, like every other disease, a race or breed of animals becomes immune, and I believe the sheep are becoming immune to that trouble, and we hear little of it now. Occasionally flocks in new districts are troubled with it. I believe it is only a question of a very short time until it will be a parasite that will be spoken of as a "has been." Outside of that I believe the greatest menace or drawback to the keeping of sheep by the average farmer is the fact that they may be killed by dogs, because they do not receive proper remuneration or pay from the county for them. If we could advance our legislation so that men could get adequate compensation for their losses in this direction it would encourage them to keep a better grade of sheep, sheep that would produce a larger number of lambs and with a heavier weight of wool, and would call the attention of the authorities to a better enforcement of the dog law. If your county commissioners had to pay a large tax for killed sheep, and it would roll up to any considerable sum, they would then see that the officers looked after the dog part of it. As it is now, all of you who have had any experience know it is, almost a farce, that it is almost a mortification of the flesh to make application to the township trustees for remuneration for good sheep. Years ago I adopted this plan, and it might be incorporated in an act of legislation. When the tax assessor came to me I put down one sheep at $200, five sheep at $50 each, ten sheep at $40 each, ten sheep at $25 each, fifty sheep at $10 each and one hundred sheep at $6 each. The assessor said, "Isn't that rather strange?" I asked if other farmers did not put in their sheep that way. He said, no, that they gave them in at the minimum price, and I think the township assessor is allowed to assess the sheep at two dollars in this county. Suppose the dogs break in and kill a lot of these sheep. Naturally they kill the best sheep. If you have five sheep in the flock that weigh 250 pounds each they are the very first ones that are going to be killed, because they can not run fast. After a little dog has chased them around the lot a few times the big sheep will get on their knees and lie down, while those that are long-legged and rangey get away. Then you go to the township trustee and say to him, "I had among my flock ten high-bred sheep that I paid $25 apiece for; they have been killed and I want $25 apiece for them. He will doubtless say that he will pay no such price for them. You may tell him that he hasn't anything to say about it; that you will call for appraisers and they will appraise them and he would have to pay it. He will then probably say that he will not appoint appraisers that are of your opinion. Then you go before these men and ask them to put a price of $25 a head on those sheep, and they will say that they have no such sheep in their flocks, and you will have to take what they choose to give you. But if you can say that you have paid taxes on those sheep at $25 a head, I think almost any appraisers would assess damages for that amount. You know the authorities pay the sheep killing bills out of the dog fund, and that fund is usually low. In some places they have had to wait two or three years for their money. Something might be brought about by which men might be allowed to pay taxes on sheep with this object in view, and then the county ought to be made to pay for the animals that are killed, first out of the dog fund and then out of some other fund; or they ought to be made to say at the beginning of each session that they must have so much money for the sheep killed. Just as soon as you do that you will encourage breeders throughout the State to build up their flocks again. My observation is that most of the men who have had a large number of sheep killed and only got a fourth of what they were worth from the county commissioners have gone out of the business. It would become a very important matter to the county commissioners to see that the dog laws were enforced if they had to pay the full price of the sheep.

Then, I think we ought to have a central wool inspection department, where the wools might be graded. As it is now, we have only a few wool buyers in the State, located generally in the center of four or five wool growing counties. The wool is usually bought at so much a pound without much regard to its quality. There again men are not encouraged to breed better sheep and get a better quality of wool. All is wool that comes, and all comes at about nineteen cents a pound. When that wool goes to Boston, however, it is sorted into thirty-two different grades and it brings thirty-two different prices.

A man that breeds a fine flock of sheep should be entitled for his extra labor and expense to the money he has invested in his business; he should receive from five to seven cents a pound more for his wool than does the man who has not taken care of his sheep. I believe in that way we would encourage men to have better flocks and to take better care of them. There is no doubt about it, the better flocks men have the more interest they will take in the business and the better profit they will get from the business. The great trouble has been with the people who have gone into the business and gone out of it. Every now and again somebody will say, "I want to buy some sheep." Then they will ask the opinion of some one of us as to what we think of the proposition. My answer to this question usually is, "How are you going to look after them?" The usual reply to this is, "Oh, well, we are just going to put them on the farm." Then I will advise them to keep out of the business if they are just going to put them on the farm and let the farm hands take care of them. If you are going into it in an intelligent way and are going to have a man who knows how to take care of them as they should be cared for, it will be a profitable and pleasant business.

Our dog laws that have been passed in the last few years have been a step forward in the advancement of the interests of sheep growers, but I believe they can be made stronger. It occurs to me now that these two things might encourage the breeding of better sheep and more sheep in Indiana.

Mr. Cotton: We had a test case in Hamilton County. A sheep grower at Zionsville had killed in two nights four hundred dollars worth of sheep. He came to me and asked my advice. I told him to follow the law and have them appraised. They appraised his buck lambs at fifteen dollars apiece, because he was selling them at that. The township trustee refused to pay. I told him to sue for the amount, and he brought suit in the Circuit Court at Noblesville. The trustees had a lot of butchers there who had gone and looked at the sheep and appraised them at the market price. They said they were worth a certain price in the butcher market. That is all the market they knew of. We proved by other men that they were worth fifteen dollars apiece, and the court took our view of the case. Through some technicality the Supreme Court dismissed the case. If we stand firm on that line we can get the price they are worth. The judge of the Circuit Court said he could see that there might be more than one market for any kind of stock. The reason our suit was dismissed was because an attorney had made some mistake in the papers.

Mr. Harshbarger, Sr.: I have handled and fed sheep since I was eight years old. Some twenty years ago I conceived the idea that if I could get all my neighbors to keep sheep we would not have so many killed. I had a lot of sheep brought from Canada that cost me seven dollars a head. They arrived in the winter, and a few days after I sheared them the dogs got hold of them and killed 27 out of 52. The appraisers appraised them at two and three dollars a head. I said I wanted what they cost me. I had ten lambs in the bunch that I had been offered ten dollars apiece for. What the dogs did not kill were so badly scared that they were injured, and sooner or later I lost the whole flock. Then I began to think that if more of the neighbors had sheep there would not be so many sheep-killing dogs kept. I encouraged a few of the neighbors to buy small flocks, got my renters to buy a few, and some of my friends got their renters to keep sheep, and since that time we have not had so many killed. I have noticed that it is usually the renters and other poor men that keep the sheep-killing dogs. We have all concluded now that we will compel them to dispose of them. A friend of mine in Denver, Indiana, said they were organized up there, and that they doctored the dogs. When a man had sheep killed his friends from several miles distant would come over and put food for the dogs where they could get it, and then when they had sheep killed they returned the favor, and between them they managed to keep the dogs cleaned out.

Member: I think every dog should be kept shut up or tied up from seven in the evening until seven in the morning. I think if the Legislature would make a law compelling owners of dogs to do this we would have no sheep killed.

Mr. Privett: If you will all elect trustees that will see that the dogs are registered we will always have money to pay for the sheep that are killed. We used to have sheep killed every year, but for the past five years we have had very few, because we went after the assessor, and whenever we knew of a dog we put him after it, and we told him if we elected him he would have to put them on the list.

Mr. Roundtree: I am very much interested in Mr. Levering's talk. There is only one point on which he and I differ, and that is the statement that Indiana is not raising one sheep where she should raise four. The outlook for the sheep industry of this country never was brighter than it is at the present time. The consumption of mutton never increased at as great a ratio as it has the last two years. The consumption of mutton in the United States now is about fifteen million pounds a year. This should stimulate every farmer to raise more sheep and better sheep, and incidentally sheep with better wool. Farmers should also raise better dogs. Now, I like a good dog. I have a Scotch collie that is out of imported stock, and he is the greatest friend to my flock of sheep on the farm. No man could look after those sheep as closely as he does. If a strange dog comes in there after them he goes for him at once. As for killing dogs promiscuously, I would not endorse such a plan as that. I would rather let ten guilty dogs go free than to kill one innocent dog, or such a dog as I have on my farm, and you are liable to kill just such dogs when you distribute poison promiscuously.

Mr. Harshbarger: I had a sheep dog that awakened me twice when other dogs were killing my sheep.

Mr. Keim: There is one point in Mr. Levering's speech that I think is full of interest to this Association. I refer to the wool question. He said we should have a central department of wool inspection for the State. I have been identified with the wool trade for a number of years, and I know we produce a very superior grade of wool in Indiana. As a member of this Association I am interested in doing anything that will further the interests of the sheep business in the State of Indiana. If we can do anything to have this wool inspection I think we ought to do it. The business of this Association ought to advance a little, and it seems to me something like this would be a step in advance and in the right direction. It is not necessary for this Association to meet year after year and discuss the question of raising sheep and how to get a start. We know those things pretty well already. I wish to say personally there has not been a year since I have been keeping sheep that I have not received from two to four cents a pound above the average price paid for the clips of my neighbors. I know that we have a great deal of wool that does not bring the farmers what it is worth. I think Crawfordsville is one of the best wool markets there is in the State of Indiana. We have good buyers there, and yet I do not believe they always pay full value for some of the wools they handle. The good wools have to pay for the poor. I think if Mr. Levering would block out a plan we might be able to follow it.

Mr. Roundtree: I can not see how the appointment of a wool inspector would benefit the wool growers of Indiana, because the manufacturer is the man who is going to decide what your wool is worth. You can form no combination by which you can make your own prices, even if you had such an inspection. I think we should raise the wool the manufacturers want, and if you do that and market it with the manufacturers you are coming to a place where you will get value for your wool. For the past four years I have been able to sell my wool at a good, handsome profit. The wool I made a premium on was bought by the manufacturers and they found that it shrunk 13 per cent. less than your average wool. Send your wool to the manufacturers where they know what is wanted.

Mr. Strange: The thing that is against us is the question of transportation in doing what Mr. Roundtree suggests. If we had wool manufacturers in the State of Indiana we would have a better market for our wool. Formerly all the glass of the country was manufactured in the East. Now we have plenty of glass factories in the West, and especially in our own State. If we could get spindles running in Indiana it would mean to us what the cotton mills that have been built there mean to the South. If we had the spindles running in Indiana we would save the railroad tariff that is placed on every one of us. We pay it to send the wools east, and then pay it again on the cloth that is sent back to us. If we could have the spindles running here in this State we would save all of this. If there was any way in which we could encourage that we would promote the sheep growing interests of the State largely. But for us to get a central point at which to have our wools graded according to its quality does not seem to me any better than our present system of selling wool.

Mr. Keim: I know the Messrs. Merrit, who manufacture wool in Indianapolis. If you wish to visit their factory you will find a very different state of affairs from that which existed ten years ago. The class of wools they used ten years ago they do not now use at all. The wools they are using in their factory are scoured territorial wool, very fine, short wool. They buy their wools from the territories and buy it scoured. The wools they buy from around here they ship to Boston. All the wool from our market in Montgomery County goes to Boston. I agree with Mr. Strange that if we could get this wool manufactured right here in this State we would get more out of it. When I take up the American Sheep Breeder, or any journal that devotes itself to the details of the market, I find that in certain portions of Ohio and Pennsylvania the raisers of wool hold their crops until special wool buyers come in there and give them a premium price for it. If the sheep breeders of Indiana would produce a quality of wool that would justify us in holding this until a foreign buyer would come in here for it, and we would decide to have a certain price for our wool we could get it. One thing that is the matter with the Indiana Wool Growers' Association is that we are an association in name and not in fact. Each member sells his wool independently of the others, and we do not have any system or association in our business methods. Again, we do not try to produce the same quality of wool and then seek out the best markets for it.

Mr. Mills: The buyers through the northern part of the State sort the wool closely. They will go through the fleeces and give one price for one fleece and another for another fleece. A flock that has been raised about the strawstack will have a fleece full of dirt. Another flock has been kept differently, has been illy cared for for a while and then put on forced food, and the wool will not be uniform. Still another flock will be well cared for from the start, and they will have nice, even, clean wool, and for this the farmer gets the highest price. No grower can produce a regular grade of wool unless he keeps his flock on the same kind of feed and gives them the same kind of care all the time. The price of the wool will vary five and six cents a pound, and this in the very same flock.

President Thornburg appointed the following committees:

Auditing Committee, G. W. Harshbarger and I. M. Miller.

On Resolutions, Uriah Privett, Mortimer Levering and I. M. Miller.

Nominating Committee, Mortimer Levering, Josiah Strange and Fred B. Hartman.

Adjournment.

SECOND SESSION.

The second session was called to order at ten o'clock Friday morning, January 8th, by President Thornburg.

Mr. Strange: I want to make a suggestion in regard to the inspection of wools. I should like at some meeting to have a man get up here and show us the different grades of wool and explain all about them and give us the prices they should bring. That would enlighten us. I have been a wool grower for the greater part of my life, and I can not tell much about these different grades of wool or the prices they should bring, because I have had no way of learning how to do this. The person selected to show us these grades should take samples of the different wools sent here and tell us why they are graded in a certain way, and the price each grade should bring in the market. It struck me that there was something wrong when I heard that we were producing wool for the Eastern markets and the Southwest was producing wool for our market.

Mr. Levering: If we had a place where wool could be inspected Mr. Strange could pull out a few samples from the fleeces and send it there and have it graded. When the buyer came to him he could show him the tag attached to each sample, showing that such wool as that should bring 22 cents a pound. The buyer might say he would only give 17 cents, but you can say that he can not have it for less than the price you put upon it, and you will probably get that price in the end.

Mr. Roundtree: I would like to have Mr. Strange's suggestion in regard to having someone at the next meeting explain the grading of wool. But if we should get this person here would the members bring samples of wool? How many of us have brought samples of the kind of wool we are growing to this meeting in the past five years? However, if we had a man here who understood the grading of wool it would be a benefit to the members of the Association.

I shall tell you what I do with my wool. I send samples of my wools to the big Eastern manufacturers and get it graded and sell directly to them. That is what I intend to do, and that is what every one of you can do. We have dealers in Crawfordsville who handle an enormous quantity of wool and some of them can not tell the difference between a Shropshire fleece and a Southdown fleece, and you are at the mercy of these buyers. Don't sell to these men; sell to the manufacturers.

Mr. Strange: If we act individually in this matter it will have no effect, but let the Indiana Wool Growers' Association make it understood that it is behind this movement and the movement will have some weight. That will put a force behind it they will respect, and they will grade the samples for us.

President Thornburg called for the reports.

Mr. Miller read the following report of the Auditing Committee:

Balance in Treasury	$8.15
Dues received by Secretary	5.50
	$13.65
Paid for postals	1.50
Balance	$12.15

I. M. MILLER,
GEORGE HARSHBARGER,
Committee.

Mr. Levering read the following report of the Committee on Resolutions:

"Whereas, it has pleased divine providence to remove from our midst our friend and comrade Calvin F. Darnell, be it

"Resolved, That the Indiana Wool Growers' Association has lost one of its oldest members and most earnest supporters, a man recognized by all as one of the most zealous and intelligent upholders of advanced sheep husbandry.

"Resolved, That in the demise of our fellow member we have sustained the loss of a sincere friend, a noble hearted man and a citizen of the choicest character.

"Resolved, That we offer to the widow and family of the deceased our deepest sympathy and share with them in their great bereavement.

"Resolved, That a copy of these resolutions be sent to the family of the deceased, and also spread upon the minutes of our Association.

"MORTIMER LEVERING,
"URIAH PRIVETT,
"I. M. MILLER,
Committee."

Mr. Levering read the following report of the Committee on Nominations:

Your Committee on Nominations respectfully report the following names for officers for the ensuing year:

For President, William H. Thornburg, Anderson; for Vice-President, Jacob M. Harshbarger, Ladoga; Secretary-Treasurer, J. W. Robe, Greencastle, Executive Committee, George W. Harshbarger, Ladoga; C. A. Phelps, New Castle.

Respectfully submitted,
JOSHUA STRANGE,
MORTIMER LEVERING,
Committee.

On motion the report of the committee was adopted.

President Thornburg appointed the following Committee on Program for the next meeting: Mr. H. H. Keim, Mr. Mortimer Levering and Mr. I. M. Miller.

Mr. Levering: In looking over the personnel of our meeting yesterday I found we had very few new members. The strength of our Association and its usefulness, I think, would be very much promoted if we would get in the new people who are going into the sheep business throughout the State. The second generation is coming on. While we do not count ourselves very old, we recognize that the sons of the older breeders are coming into the Association, and we ought to help equip and fit them for the business. I do not know just what could be done to bring together a large number of the wool growers of the State. It seems in this day and age that men will go farther to eat an indigestible banquet than anything else. In our Jersey Cattle Club the largest meetings were held when we had a banquet at a dollar a head. We sent out invitations to men to attend a banquet at the Grand Hotel, and asked them to subscribe for as many tickets as they wished at a dollar apiece. We have had as many as eighty or ninety members come to that banquet. We transacted our business in the assembly room of the hotel before we went to the banquet. Nothing of that kind has ever been tried with the Wool Growers, but I believe if we could arrange for a business meeting at 4 o'clock and have the banquet at 7 or 8 we would have a good meeting. We can get such a dinner served for a dollar a person at the English or the Grand hotels. They have rooms suitable for banquets. I think we ought to try to get as many of the younger breeders and the new men in the business to that meeting as possible. If we could send a circular letter from our Secretary's office to each member of the Association, and in it enclose a postal card for them to send back with as many names of sheep breeders as they know in their counties that they could recommend as members. In this way we could probably secure eight or nine hundred names. Then the Secretary could have letters written to each of these men asking them to become members and explaining to them the objects of the Association. Then when the right time of the year comes around we could try this plan of a dinner. I should like to see this Association grow.

On motion the President was authorized to appoint a delegate from the Indiana Wool Growers Association to attend the National Wool Growers Association; also a delegate to the National Live Stock Association.

The meeting was then adjourned sine die.

SECOND ANNUAL MEETING

OF THE

Indiana Duroc-Jersey Swine Breeders.

This meeting was a success in numbers, in enthusiasm and in everything that goes to make a successful gathering of swine breeds, the meetings of this Association are like the breed, improving with age. The breeders to the number of seventy-five were called to order at the Oneida Hotel, January 7, 1904, with C. C. Cotton in the chair, being appointed chairman in the absence of their President, W. E. Jackson.

There never was a lot of breeders that enjoyed themselves better, both in a social and business way than did the Duroc-Jersey breeders this year. Their meeting was snappy and all subjects were discussed and the young breeders out for information were well paid for money and time spent in attending. And the only way to get full benefits of these meetings is to be on hand and hear the experienced breeders tell how they feed and care for their hogs, and then mix with the breeders. All the breeders reported having good business in 1903, and getting ready for a good trade in 1904; in fact there will be more public sales this year than ever before in the history of the breed.

PRESIDENT'S ADDRESS.

Fellow-Breeders and Friends of the Indiana Duroc-Jersey Swine Breeders' Association:

It affords me untold pleasure to greet so many at this, our second annual meeting. The pleasure thus afforded comes from many sources. The foremost, but not the last, is the ability of so agreeably and successfully accomplishing the ends looked forward to in the inception of a State organization.

In January, 1902, a few breeders broached the subject and feasibility of such an organization at the Indiana Swine Breeders' meeting, held at Indianapolis. In pursuance to certain facts set forth, it was agreed that we have a meeting at Marion the following March.

In response to a call, which was signed by a few breeders, only a few answered, but what the meeting lacked in numbers it made up in the enthusiasm, determination and harmony of these few zealous workers. Many of those faces I am pleased to recognize in this able and intelligent audience. Many of the gloomy, discouraging clouds which hang over a new organization—such as ignorance and mercenary motives—have been dispelled by that all-conqueror, "Perseverance," and we are enabled to plainly see that bright and luminous star, "Success," the goal to which we all aspire, and I am pleased to note that many worthy breeders have met success, which is the natural and legitimate reward of merit.

A careful resume of the reports recently issued by the various Duroc-Jersey associations will convince the most doubtful of the tremendous increase both in breeders and the number of registered stock during the past year. It does not require in this address that I shall deal in any statistical reports, as anyone can peruse them within the seclusion of his own library. My only object is to bring the matter to your attention, and as my time is limited, I may treat of it only superficially.

Nor is it in the scope of this address, which of necessity must be short, to go into minute details touching the experiences of the beginner, of the many difficulties he will encounter, but I must say in this, as in every other business, intelligence, patience and industry will, when seasoned with judgment, bring at least partial success, with the chances favoring a much greater degree. The new beginner must not for a single moment lose sight of the fact that to succeed he must work intelligently and persistently. It takes toil, it takes study—and he must expect and be prepared for disappointment, for disappointments lurk at each and every turn. Many of our most promising beginners have fallen by the wayside simply because their first efforts did not attain the degree of success they had hoped for, and gone into other business, where they are not required to work so diligently and where the chances of failure are not so discouraging.

Most Duroc swine breeders well remember—and in remembering one does not have to travel so far back into "yesterdays"—when they were greeted with all sorts of derision and scoffs, and often wanting but little of downright scorn. Who, in the past few years, prompted by the remarkable advancement and the great profits derived from the growing of the red hog, have not turned their eyes toward this fast-growing animal with the query: "Why is it that so many people are becoming so deeply interested in this comparatively unknown hog?"

We are frank enough to admit vast changes have been accomplished in the form and general appearance of the Duroc swine since his advent as a money producer, and he now stands pre-eminent with the world-famed Poland-China and Berkshire for beauty of color and symmetry of form.

The originator of this far-famed beauty has lived to behold, with that pride of the true American spirit, those wonderful changes until he is enabled to declare, with emphasis: "I have beheld his advent and growth to eminence in all desirable qualities in this species of live stock."

The proof necessary to establishing the fact in the minds of any incredulous persons, who possibly may be laboring under the halucination of a doubt as to the growth of the Duroc, is the fact that during the past two years, more breeders have taken hold of the red hog than all others combined, which is enough within itself to convince the most skeptical observer of the worth of this selection, and with the assurance of unequaled success in the merited fame and fortune of this favorite, that in every clime, all over the land, they are fast proving nature's inexorable law, that they are the survivor of the fittest.

There are a great number of instances where we might add suggestions which, if followed and acted upon, would be of incalculable benefit to the intelligent breeder seeking information on some particular subject which interests him alone, but we note the excellent program prepared by our worthy committee, containing, as it does, gentlemen of a wide range of experience running through many years of study, and I feel that most points of vital interest to the beginner will be treated upon in such a plain, thorough and intelligent manner that he will go from this meeting better prepared to conduct his chosen vocation by having been here.

After the president's address Col. David Wallace, of Indianapolis, gave a talk on "Breeding Thoroughbred Swine." He made some good points and brought out discussion, he was followed by W. A. Craver of Crawfordsville, Ind.

The following breeders read papers: J. B. Hilligoss, Anderson, Ind.. M. P. Cannon, New Castle, Ind., and C. E. Smith, Lincoln, Ind. These papers and the discussion will appear in the Journal.

One of the very pleasing features of these annual meetings is the banquet held each year. It is a love feast for breeders of all breeds of hogs, and out of 170 that sat down at the tables, seventy of them were breeders of the reds; one rule of the Association is when you join the Association that entitles you to a seat at the banquet table. The election of officers for 1904 resulted as follows:

President, C. C. Cotton, Manila; Vice-President, C. B. Lockhart, Martinsville; Secretary and Treasurer, C. E. Smith, Lincoln.

Executive Committee: R. C. Springer, Elizabethtown; J. D. Nidlinger, Decatur; E. M. Clark, Bunker Hill; M. P. Cannon, New Castle; W. A. Carver, Crawfordsville.

Program Committee: S. W. Johnson, Marion; E. E. Phillips, Onward; L. Savage, Wagoner.

Arrangement Committee: C. B. Lockhart, Martinsville; David Wallace, Indianapolis; E. K. Morris, Indianapolis.

The last session was held at 8 a. m., January 8, and breeders were so enthused that the President had to tell when it was time to adjourn so all would get to the Stock Yards in time for the red sale. The meeting adjourned to meet at Indianapolis, January, 1905.

PREPARING AND OFFERING SWINE FOR PUBLIC SALE.

[Read by M. P. Cannon, New Castle, Ind., before the Indiana Duroc-Jersey Swine Breeders' Association, January 7, 1904, at Indianapolis, Indiana.]

This question does not call for oratory, but a man who carries slop. To begin, you should have thoroughbred stock, sires and dams recorded. Of course, they should be Duroc-Jerseys. Have your pigs to come in March and April. When the pigs want to begin to eat, give them a place to themselves. Their food should consist of shorts, bran and oats, ground fine, with a small portion of meal. Feed sparingly. Just keep them growing nicely; do not allow them to get fat before sale day; then have them just fat enough to round them out nice; give them plenty of range to run over with fresh green grass, such as bluegrass first and clover for summer pasture, with light feeds of corn each day, fresh water all the time. By the middle of July I put my pigs on full feed of ground oats with one-third corn, soaked from one feed to the next; continue feeding the oats till green corn will do to commence feeding, which is usually about the first of September. Commence with the corn very sparingly, increase the amount a little each day until you have them on fair feed of corn, then begin to cut down the slop or ground feed to within thirty days of your sale date when it should be discontinued entirely, then give your pigs corn and good clean water. Do not have corn lying by them, just give them what they will eat in the next hour or two; feed this way to within ten days of your sale, then slacken some on the corn. You should rake the cobs in a pile once a week and make charcoal for them to eat. Give salt once or twice a week. When you have done all this you surely will have some nice pigs for your sale. You have the pig ready, but what next? I always see about advertising properly and thoroughly. We have a great amount to do yet, providing lunch, conveyance, cleaning sale barn, whitewashing pens, penning hogs and getting them cleaned and brushed up, making them as clean-looking as it is possible to do. Pen them with males and females of the same litter in pens as near each other as possible, have your help of the very best you can get, handle the hogs carefully and do not allow them to squeal and disturb the sale. I never drive the best out first. Just as the sale gets started nicely and every one has got in, then we commence with some of our best ones. You should not forget the auctioneer. He should have been selected a number of months ahead of your sale. If he is the right kind, he will have done you a vast amount of good in the way of persuading men to come to the sale. We followed the above and had a very satisfactory sale.

Q. Why do you quit slopping thirty days before your sale?

A. I want to get that bloated belly off the pigs.

Craver: There is another reason why you should stop slopping thirty days before the sale, that is the way they will be fed after leaving your hands, for nine times out of ten they are not slopped after leaving your hands and that means that the pigs will go down.

Nidlinger: Do you feed oil meal?

Cannon: I feed different stock foods and some oil meal.

Nidlinger: Do you think it profitable to feed any stock foods?

Johnson: I think it pays to feed stock foods; it keeps your hogs in condition so they are in good shape to resist disease.

Nidlinger: In the past twenty years I have tried the different stock foods, and they are not profitable with me. I find Old Process oil meal and ashes better than any stock food I ever fed.

Hudson: Stock foods are mostly composed of oil meal.

Cannon: I depend a great deal on charcoal and ashes.

Johnson: I think the stock foods keep them in good condition.

Baurer: We are foolish to help these stock food men to get rich. Yes, to make millionaires, when we can raise all the foods we need right on the farm.

Nidlinger: I find the Canadian field peas one of the most profitable feeds for breeders to feed their hogs. I raise several acres every year.

FEEDING AND CARING FOR HOGS FROM BIRTH TO 200 POUNDS.

[Read by C. E. Smith, Lincoln, Ind., before the Indiana Duroc-Jersey Swine Breeders' Association, January 7th, 1904, at Indianapolis, Ind.]

First, I would have the dam in as good, healthy condition as possible, free from lice; give her a good comfortable place to farrow, and would recommend letting the sow farrow on the ground; never let a sow lie on board floor before farrowing and at all times let them have plenty of exercise.

After the pigs are farrowed see that they and the dam are kept quiet as possible for at least twenty-four hours, then give just a little luke warm water and in about six hours give a little slop. If that is not too rich, increase slowly until the sixth or seventh day and then allow them plenty of good slop. Don't give any corn until about the third day and then just a very small amount, gradually increasing. Be very careful about feeding corn. The corn had better be left off if you have anything else to take its place. If corn is fed it should be very sparingly until the pigs are several days old. I consider this one of the most critical periods of a pig's life, one heavy feed may, and often does, ruin the litter. I have had more than one illustration of this. What the sow eats affects the pig directly, and that in a few hours. When the pigs are several days old I begin feeding equal parts of ground oats and corn, made into a slop with warm water. The pigs also will soon learn to drink of the slop when a trough is given out of reach of sow.

One very important thing is to notice in the pig's mouth for those little, black, sharp teeth. Provide yourself with a small pair of nippers and nip the teeth off close. If you have had experience of this kind you know that the little fellows will bite one another, also bite the dam, it being but a short time until they get no milk and the results are you have a litter of runts.

When pigs are eight or ten days old, move the sow into a small lot, or put two sows and their litters together, that is, sows that are accustomed to each other, where they can have exercise and get a little grass. The pigs will naturally go along and get what exercise they need, thus avoiding thumps and keeping them from getting fat and lazy. The feeder must watch the pigs closely every day and increase feed only as it is required, always just enough to get all possible growth, yet never once too much. The instant the pigs begin to scour, cut down the sow's feed. Just a little copperas dissolved in sow's swill will check scours if done at once. If pigs show any signs of constipation add a little oil meal to sow's slop. Don't over do it. At all times keep sows' quarters clean, bedding fresh and dry. Sore tails, scurvy, etc., are the results of filth and neglect.

When pigs are two or three weeks old begin to feed them to one side, where the sows can't disturb them, get them to eating and as they take more feed they will require less from the sow. Weaning them is largely a matter each breeder decides according to use of the sow afterwards and can be done at seven or eight weeks or later as the case demands. But let the weaning, whenever done, be prepared for first and not done suddenly. Cut down the sow's rations a week before hand to stop the flow of milk, then when weaning remove sow and leave the pigs. Shut sow up in a tight, dry pen and feed very light for at least five or seven days and it is not likely you will be troubled with ulcerated udders. It is impossible to lay down any set rules, telling just how much to feed, just what to feed, just how, when and where to feed, for this must depend largely on circumstances, surroundings and location. But one rule will always apply, always feed enough, never feed too much and to come as near a balanced ration as possible.

After pigs are thoroughly weaned I would recommend as large a range as possible and access to a good clover pasture. They must have plenty of shade and all the pure, fresh water they want, not allowing them to make wallows or lie in stagnant waters or holes and at all times use preventatives to keep disease away. I know of nothing better than to keep them free from lice and feed them something to rid them of worms. Feed a small ration of corn regularly—exercise the greatest of care about feeding corn as it is very injurious if too much is fed—slop them with middlings and bran, half and half. If more middlings are fed you are apt to have the feed too strong and check the growth of the pig.

I believe if these rules are brought into practice, and used from birth up to six months old, that it will be no trouble to get the porker to weigh two hundred pounds. Let me hear from some one else.

Yours truly and respectfully,

C. E. SMITH.

DISCUSSION.

This paper was well received and brought out a good discussion on different feeds. The point being brought out that to have good animals a large belly must be grown on a pig, and clover and slop was considered the best feeds to make large bellies on pigs.

Q. Has any breeder tried corn ensilage for feed for hogs?

A. We are feeding that food now and our hogs like it and are doing well on it.—Puckett.

The slop question came up and the breeders were divided as to feeding thick or thin slop. Some urged that thin slop would increase the size of the stomach, while others argued that by feeding thick slop it would be eaten slower, making digestion better, which means healthier and stronger pigs.

President: How many mean by thin slop that it will run in the trough? All those that fed thin slop said it would run.

The president called for the number that fed thin slop, also those that fed thick slop. The vote was two to one in favor of thin slop. The president said: "I had trouble in my herd once and I think it was caused by pushing my pigs too hard and I fed thin, rich slop. I think if you feed thick slop, thick enough so that it will have to be eaten slow, the pigs will be healthier.

Cannon: I feed oats, ground fine (I drive six miles to have it ground in an old fashioned burr, when I have an iron mill near my farm). I make mush with hot water and let it stand fifteen minutes before feeding, have fifty bushels of turnips, cook them soft and mash up in the kettle.

Johnson: I think fine ground feed the best to prepare a slop.

The subject was brought up, "The Best Way to Dispose of Cholera Hogs After Death." Some said they burned them and Mr. Puckett said he had his man to sprinkle the carcass with lime and it was no time before it was consumed, having disposed of the animal, killed the germs and disinfected the premises.

Indiana Swine Breeders' Association.

The twenty-seventh annual meeting of the Indiana Swine Breeders' Association was called to order at 10.00 a. m. in room 12, at the State House, Thursday, January 7, 1904.

In spite of the cold, bad winter weather of a few days previous, the breeders turned out in good numbers and held one of the best attended, most entertaining and instructive meetings ever appreciated by this Association. There were at least two hundred breeders present, representing all breeds, but they furled their banners, ceased shouting the praises of the blacks, reds or whites and stepped over the line to join in a discussion of advantages, diseases and defects general to all.

Owing to the sad death of the president, Mr. J. B. Luyster, of Franklin, Ind., and the sickness of the vice-president, Mr. A. S. Gilmour, of Greensburg, Mr. F. P. Modlin, of Newcastle, gave efficient services in the chair. On account of the above, Mr. Modlin omitted the president's address, he being unprepared for the occasion. The minutes of the last meeting were also omitted owing to the lateness of the hour of commencement, and the meeting started off with the second paper on the program.

"Some of the Difficulties Which Swine Breeders Have to Encounter and How to Overcome Them." Mr. W. O. Canaday, of Anderson, Ind., gave a most efficient talk on the above subject. He took a young breeder, with very little experience, with a herd of sows on his hands. Many older breeders can well sympathize with the poor young fellow, as portrayed by Mr. Canaday, with a herd of sows which would not come in heat nor get in pig, and when the pigs did come they were small and got the thumps and scours, from over-feeding the sows. How the pigs got mangy, lost their little tails, and finally wound the poor, discouraged boy up with the hog cholera, the grand finale of many older breeders' herds. But Mr. Canaday was generous; he went on to give his experience in keeping away from all the above troubles; how he would give his sows more exercise, not to feed so much corn, give the pigs exercise and, mainly, to try and prevent, by feeding, cleanliness and medicine, the last catastrophe—cholera.

No. 3 on the program, "What Constitutes the Real Value of Breeding Animals, and Why Do Breeders Pay Seemingly High Prices for Some

Animals and refuse to Buy Others that are Seemingly Better at Low Prices?" Mr. C. W. Travis, of Lafayette, Ind., gave a short talk on this subject, stating that the real value of a brood sow was her ability to turn out a good number of strong, vigorous, well marked pigs. Mr. Travis went on to say that the breeders and farmers were inclined to pay too much for fat to look at instead of points, which constitute the up-to-date type of hog. It was also decided, in the general discussion on this subject, that to have your pigs come early and then hold an early fall sale was the most expedient way to dispose of a crop of pigs.

The fourth subject on the program, "Some Leaks in Raising and Disposing of Pedigreed Hogs," was assigned to Joe Cunningham, of Peru, Ind. In his talk he decided that the greatest leakage in the breeding business was the losses in the spring pig crop. It really represented the greatest loss in Indiana. No man can expect to raise a good percentage of his hogs unless he is fixed for it. Poor quarters and poor beds will kill your pigs no matter how many nights you sit up with them. Trusting to providence will be found as the greatest mistake toward profitable swine breeding, yet thousands of breeders and farmers are in that rut and wonder why they don't make a success in the swine business. Mr. Cunningham went on to say that one February pig was worth four May pigs in his business, and the way he saved these early pigs was by being fixed for it. His hog house is 21x25, with six stalls 8x8, with a rail all around them; ceiling 7 feet high, lathed and plastered. There is also a stove and bed in the house. The stove to keep the pigs warm, and the bed is for Joe. Naturally it is an extra large one. Mr. Cunningham wound up by saying that the main trouble is when the pigs are first born. Watch them then.

The chairman then referred back to the first paper on the program, "The Effects of Feed on Size and Quality of the Bone." Prof. Skinner of Purdue University, Lafayette, Ind., referred the breeders to Prof. Henry's publication on the above subject. He went on to say the best plan to get a good bone was to keep away from corn, as it weakened the bone. What feeders desire is a hard, flinty bone, of medium size; not a coarse, loose, open bone with lots of bulk. The college had decided that the use of bran, oats, tankage and shorts was the best feeds to improve the amount and character of the bone, but breeders should look to their crosses a great deal for best results along this line.

"Have the Prices of Breeding Hogs Decreased in the Past Twelve Months? If So, What Was the Cause?" was the subject assigned to Mr. Lloyd Mugg, of Kokomo, Ind. Mr. Mugg stated that his stock had been selling good. Outside of that it would be necessary for him to refer to the sales of the past year, and he could not help saying that all breeds were selling higher than they ever sold before.

The regular breed meetings were called to order about this time and the meeting was practically adjourned.

The officers for the ensuing year are:

President—F. P. Modlin, Poland-China breeder, Newcastle, Ind.

Vice-President—W. C. Legg, Duroc-Jersey breeder, Windfall, Ind.

Secretary—W. R. Midkiff, Poland-China breeder, Vincennes, Ind.

Treasurer—F. Elliott, Berkshire breeder, Vincennes, Ind.

Executive Committee—W. F. Johnson, Poland-China breeder, New Augusta, Ind.; F. F. Moore, Chester-White breeder, Rochester, Ind.; C. C. Cotton, Duroc-Jersey breeder, Manila, Ind.

Program Committee—E. K. Morris, Indianapolis; W. R. Midkiff, Shelbyville; Lucian Arbuckle, Hope; Chas. B. Lockhart, Martinsville; E. J. Barker, Thorntown; J. C. Reed, Springport.

On motion, a committee composed of W. C. Hendricks, A. F. May and W. C. Legg was appointed to draft resolutions on the death of Mr. J. B. Luyster, of Franklin, Ind.:

Whereas, It has been the will of Divine Providence to remove from our Association, by death, J. B. Luyster, Franklin, Ind.; a brother breeder for whom we had the highest esteem as a citizen and as an honorable member of this Association; therefore be it

Resolved, That we, the members of the Indiana Swine Breeders' Association, extend our deepest sympathy to the family of our deceased brother, and that a copy of these resolutions be sent to the family and placed on the records of this Association."

Messrs. W. O. Canaday, A. C. Hodson and F. Moore were appointed as a committee to confer with the members of a new association formed, called the Improved Live Stock Association of Indiana. This association was organized in the interest of live stock husbandry, all breeds and classes being included.

DESCRIBE A PIG TO BE BOUGHT AND ONE TO BE SOLD.

Paper read by Walter Kemp, at the Poland-China meeting, Indianapolis, January 6, 1904.

Fellow Swine Breeders, it is with great pleasure that I am with you here in this city at this time, assembled with brother hog breeders, that we may be a benefit to each other by discussing the many details connected with one of the grandest enterprises of the day, Poland-China breeding. As for the subject now before us—Describe a pig to be bought and one to be sold. The two phrases to me are as I believe they are to all of us, synonymous; that is under like conditions as to the price given or received for an animal and the place he is to fill.

It is true there are different markets in the hog business as well as there are different grades of animals to fill them. For instance we may make four grades, which we will classify as follows:

1st. The pig for exhibition purposes.

2d. The pig for the breeder in general.

3d. The pig for the farmer.

4th. The pig for the feed lot.

We shall not attempt to portray here the ideal show pig today as we see him. But each and every one of us should have his ideal show pig vividly stamped on his mind. If he hasn't he had better turn his attention to some profession other than he is now in, because on this one point hinges the excellence of the Poland-China hog, and his keeping of the high standard which all other breeders are trying to imitate. This is what we are all striving to produce in our own herds as well as for the Poland-China in general—Our Ideal.

If we are in the market for this class of hog and we are fortunate enough to come in contact with one that is quite in harmony with our ideal, we should say in this case he is the pig to buy. On the other hand if the happy possessor of such an animal is in need of coin more than he is in need of a show pig, we should say he is the pig to be sold.

As for the pig to suit the demand of the breeder in general, we will agree that they are not all born good enough for the first class mentioned by any means. There is a large per cent. of them which would be termed high class ones; but would not quite do for the show ring. This class the breeder may use to a good advantage and may make a good cross, with, possibly his own herd header which might be particularly strong where the other animal may be slightly defective. Of course we must stay as close to our own standard of excellence as possible, and our own standard should be a high one, for on the quality of our brood animals as well as on the male at the head of the herds depends the success or failure of any breeder and the retention of the high and worthy name the Poland-China hog now holds. I have noticed a tendency in some to buy an inferior animal that had a long string of prize winning ancestors, or in other words, a gilt edge pedigree, simply because of the fact that the possessor of such animal was willing to sell at a low price, together with the fact that the buyer braced himself up to believe that the animal would breed on regardless of his inferiority. This we believe to be a mistake, fellow breeders. Nature's laws are infallible. Like will produce like. Therefore we think it unwise to buy pedigree without individual merit at a low price and advocate individuality together with pedigree at a very much larger price. Or if need be give us individual merit at the expense of the dazzling pedigree.

Then comes the farmer trade. This embraces a type of pig which as breeders we do not care to retain in our herds, and at the same time the farmer can afford to purchase them at a price far in excess of market value. There are pigs which are a trifle coarse in some respects or in some way not just exactly up to the standard, still he may be of large mellow growth or prolific kind which will do any pork producer good and he would be glad to have grace his pig yard. This we believe to be the pig for the farmer to buy.

There is still another class, as we mentioned before, of which we are painfully aware. This is the cull. He is present alike, however, among all breeds of the animal kingdom. Wherever we go he is present. It is no defect of any particular breed, it is caused from a misfortune of the pig which happens him before maturity. Such misfortunes are numerous and liable to happen though the best of care is taken.

This class we earnestly advocate selling to the butcher.

As for our mail order trade, the buyer should clearly state his wants, and the buyer and seller should alike be magnanimous toward each other. and follow the Golden Rule and all will be in harmony.

THE QUALIFICATIONS NECESSARY TO A SUCCESSFUL SWINE BREEDER.

Paper read by Adam F. May, Flatrock, Ind., at Poland-China meeting, Indianapolis, January 6, 1904.

Friends and brother swine breeders of Indiana:

The subject: "The Qualifications Necessary to a Successful Swine Breeder," is a subject which however little I may be able to speak of, is one which I feel much might be said of.

First, I would say that to be a successful swine breeder it were best to be born of hard working, industrious and honorable parentage, be reared to work and to love it as well. He should not be afraid to dòn the overalls, and should feel that the slop bucket and the hog troughs are necessary companions in life. He should be honest, industrious, truthful and economical—not stingy but close enough in financial dealings to so arrange as to make both ends meet. He should have an eye to the future for this purpose and also for the selection of the herd, whereby he would be governed by the rules of conformity as well as that of symmetry, so that after selecting his ideal type of hog he might be able to follow this type till the herd was selected. He should post himself well as to the individuality of the hog and also as to the different blood lines.

He should be a man of good judgment, especially as to the nature of the hog, so after having his herd selected would be able to select suitable quarters for the same. Study well the composition of the hog so as to give the proper diet for future development. He should have an eye for the welfare of the hog, and quick to note any trouble or ailment with any individual, and at breeding time he must be well enough posted on blood lines to be able to tell what blood lines to mate together to get best results. And I would here add that the man who has this necessary qualification may consider himself fortunate indeed. He should be able to use his tongue well at the proper time and place, but have sense enough to know when and where to quit. He should be a reasonable good judge of human nature, thereby not offending a would-be purchaser, and yet knowledge enough of his nature to have him follow your ideas. He should have a fair education so as to keep all accounts correct, and be a good enough penman that you on receiving his letters might be able to tell what he is writing you about. He should be genteel, friendly and sociable at all times, especially among his fellow breeders, quick to resent a wrong, and ever ready to return a kindness.

While I am willing to acknowledge and free to confess that possibly there are successful breeders who have not all these qualifications, but I am just as free to assert that all successful breeders have most all these qualifications.

MY TYPE OF DUROC-JERSEY.

Paper by J. B. Hilligoss, Anderson, Ind., read before the Indiana Swine Breeders' Association, January 7, 1904, at Indianapolis, Ind.

Friends and brother breeders, I regret that I can not be with you to attend the jubilee and help to partake of the good things that Brother Lockhart and others were requested to have served at the banquet. As to the subject assigned me, I will say: As to my type of a Duroc-Jersey, I would prefer an animal that would fill the following description: medium sized head, wide between the eyes, and not too long from the eyes to the end of the nose. I prefer a slight dish in face, thin ears, extending forward and outward, slightly broke near the center, and of medium size. I prefer a short neck with a high crest, shoulders wide on top and carrying a good depth back of the shoulders. I want a full heart girth, not cramped or wrinkled and carried down full at the underline; the ribs well sprung on the side and of good depth, not curved under and making the body round, but giving a large, roomy body, and I may as well mention that I prefer a medium length type, not too long, as I find that a hog with too much length is not as easy a feeder as the medium hog. I prefer a slightly arched back, and the hams I want as full and bulging as possible coming well down to the hock, and a tail of medium size, set on well, high up, and nicely tapered. Legs set well apart and to stand up as straight as possible on feet. I prefer a hog not too high off the ground, neither do I want him too close, just a medium distance from the ground to the underline; I want a good depth between the under and upper lines and I do not care how large they may mature —the larger the better. I also prefer a medium bone (not meaty) but solid and firm. I want short pastern joints, the shorter the better. When we Duroc-Jersey breeders succeed in getting an entire herd of this description, we will have succeeded in something that no other breeders of any breed have yet done.

PROCEEDINGS

OF THE

Indiana State Veterinary Association.

The thirty-third semiannual meeting of the Indiana State Veterinary Association was held at the Indiana Veterinary College, Indianapolis, Indiana, on January 6, 1904.

The first session was called to order at 2 p. m. by the Vice-President, Dr. F. W. Anderman.

The following members responded to roll call: F. W. Anderman, Hartford City, Ind.; Wm. Axby, Harrison, Ohio; O. L. Boor, Muncie, Ind.; E. M. Bronson, Indianapolis, Ind.; F. A. Bolser, New Castle, Ind.; James Crail, Shelbyville, Ind.; W. B. Craig, Indianapolis, Ind.; R. A. Craig, Lafayette, Ind.; W. A. Dryden, Columbus, Ind.; J. O. Greeson, Kokomo, Ind.; Clarkson Gause, Carthage, Ind.; J. J. Herron, Tipton, Ind.; Robert F. Harper, Indianapolis, Ind.; J. W. Klotz, Noblesville, Ind.; Walter Langtry, Ft. Wayne, Ind.; Frank Muecke, Indianapolis, Ind.; Ferd. A. Mueller, Indianapolis, Ind.; J. B. Mitchell, Evansville, Ind.; Wm. F. Myers, Ft. Wayne, Ind.; E. H. Pritchard, Indianapolis, Ind.; John E. Pritchard, Indianapolis, Ind.; G. H. Roberts, Indianapolis, Ind.; Thomas A. Siegler, Greencastle, Ind.; I. E. Scripture, Frankfort, Ind.; Samuel Springer, Cumberland, Ind.; Claude P. Wilson, Greenfield, Ind., and about fifty visiting members of the profession.

Reports of the Treasurer and Secretary were read and adopted.

Vice-President F. W. Anderman then addressed the meeting at length on the subject of, "The Many Recent Advancements Made by the Profession."

The chairmen of the different committees were then called upon to make their reports, and Dr. F. A. Bolser, as chairman of the Committee on Veterinary Legislation, gave a very interesting report dealing with the legislative subject in the State, stating that the demand for veterinary legislation has immensely increased within the last year.

The following officers were then elected for the ensuing year: F. W. Anderman, President; W. B. Craig, Vice-President; O. L. Boor, Treasurer; G. H. Roberts, Secretary.

When the committees had made their reports and the business of a routine nature had been disposed of, the following clinics were witnessed:

Dr. Thomas M. Hall performed peroneo-pharyngeal tenotomy; oophorectomy, by Dr. G. H. Roberts; Dr. W. B. Craig performed the operation of peronea-tibial neurectomy, median neurectomy and super-carpal tenotomy; Dr. A. N. Gurley, of Martinsville, trephined a case for nasal catarrh; Dr. O. L. Boor did some very nice work in caponizing.

Meeting adjourned to meet at State House at 7:30 p. m.

On reassembling, the routine business was again taken up, and Drs. Harry E. Smock, Franklin, Ind.; J. B. Archer, Spencer, Ind.; H. L. Coote, Michigan City, Ind.; J. L. Axby, Lawrenceburg, Ind.; C. F. Collins, Bellmore, Ind., and O. C. Newgent, Russellville, Ind., were elected to membership. A number of interesting papers by different members were read and discussed. Dr. A. N. Gurley read a paper on "Atrophy of Posteaspinatus Muscles." Dr. O. C. Newgent, a paper on "Hemorrhage of the Bladder in a Colt." Dr. W. B. Craig's subject, "The Hock." Dr. G. H. Roberts on "Dislocation of the Fetlock Joint, with Favorable Recovery." Dr. R. F. Craig on "Infectious Abortion." Dr. J. B. Mitchell on "Fracture of Sesamoids and Open Joint, Followed by Favorable Recovery."

Meeting adjourned to meet in September.

F. N. ANDERMAN, President.

G. H. ROBERTS, Secretary.

THE VETERINARY PRACTICE ACT.

By act of the General Assembly of 1901, it was intended that a person should be possessed of certain qualifications before being permitted to practice veterinary medicine or surgery. These qualifications are that the applicant for a certificate to practice veterinary medicine and surgery shall be a graduate of a reputable veterinary college or shall have practiced veterinary medicine or surgery as a livelihood in this State for five consecutive years immediately preceding the passage of the act. The act further provides that any one may practice upon his own animals, that any one may castrate, spay, or dehorn, or render assistance in emergencies without having a certificate to practice veterinary medicine or surgery. These requirements are certainly as low as could be expected, and have any regard for the interests which a veterinarian is expected to protect. In almost any trade it is recognized that it requires some experience or training before one can become proficient. If such be the case for a person working with wood, metal, or other matter, the same rule should apply much more forcibly in the training for the treatment of animals possessed of life and all the attributes which that term implies. Ignorance in cutting a board or fashioning iron means only the loss of material and the time put upon it. Ignorance in the treatment of a disease in an animal may mean the same kind of loss and much more—the infliction of pain and cruelty upon helpless creatures that is positively barbarous; the dissemination of contagious diseases because of lack of recognition, and the constant possibility of infecting people. If the ignorance of the self-styled veterinarian affected himself only, it would be bad enough, but to offer his services as a commodity to persons that do not know his ability is an imposition, and needs restriction to prevent harm.

The meaning of the act of 1901 is quite clear, that only those who are graduates of reputable veterinary colleges and those having practiced veterinary medicine or surgery as a livelihood for a period of five years immediately preceding the passage of the act should be granted certificates to practice. The act further provides that any person may practice upon his own stock, may castrate, spay, dehorn, or render assistance in emergencies, and to do these things he does not need a certificate. Some of the clerks of the court have made some wonderful interpretations of the law. It is easy to understand how they could be misled by a college diploma and not know the difference between a reputable institution and one that is not, but it is not so easy to understand why a certificate should be granted to castrate to persons following the blacksmith trade, to stockmen who do not follow veterinary practice as a profession, and the number of other conditions that have been recognized. The result has been the giving of a legality to their work and the apparent stamp of approval to their qualifications. In some respects the condition is worse than before. It is manifest that the whole matter should be in the hands of some one person competent to pass upon the qualifications, and not by ninety-nine persons that do not understand the conditions.

The following is the text of the act with the amendment of 1903 and the list of those who have been granted certificates:

An Act entitled "An act to define veterinary medicine and surgery, and regulating the practice of veterinary surgery or any branch thereof in the State of Indiana.".

[S. 291. Approved March 11, 1901.]

Section 1. Be it enacted by the General Assembly of the State of Indiana, That the practice of veterinary medicine or surgery within the meaning of this act, shall be any act or operation, the prescribing or giving of medicine for the relief of diseases, injury or accident; for the correction of habit, defective act, deformity or vice; spaying, castration, obstetrics, and dentistry upon any domestic animal.

Sec. 2. The right to use degree or title veterinarian, veterinary surgeon, doctor of veterinary medicine or surgery, doctor of comparative medicine, or any derivative thereof, shall be limited to those holding a license to practice under this act.

Sec. 3. Any person practicing veterinary medicine or surgery and having a degree from a reputable veterinary college, shall be exempt from jury duty.

Sec. 4. It shall be unlawful for any person to use any degree, or title pertaining to the practice of veterinary medicine or surgery, other than as provided in Section 2 of this act, and any person so doing (shall) be subject to a fine of not less than twenty dollars nor more than fifty dollars.

Sec. 5. It shall be unlawful for any person to practice veterinary medicine or surgery or any branch thereof who is not a graduate of a reputable veterinary college: Provided, That nothing in this act shall apply to persons who have practiced veterinary medicine or surgery in this State for five consecutive years as a livelihood immediately preceding the passage of this act, as certified by five freeholders before the county clerk where he resides, nor for the operations of castration, spaying, dehorning, or assistance rendered in emergencies, nor shall it apply to persons practicing upon their own animals. Any person so doing shall be subject to the same penalties as provided in Section 4.

Sec. 6. All persons qualified under this act to practice veterinary medicine and surgery, shall have the same recognition in prescription work as now accorded to regular practitioners of medicine, by druggists and pharmacists.

Sec. 7. All persons desiring to practice veterinary medicine and surgery in the State of Indiana shall within ninety days after the taking effect of this act, file with the clerk of the court of the county in which the applicant resides, the necessary evidence as to the qualifications to entitle them to practice according to the provisions of this act. Upon filing such evidence the clerk shall issue to such applicant a certificate to practice in accordance with the provisions of this act, in any county in the State of Indiana, such blank certificates to be furnished by the State Board of Health. The county clerk shall keep a record of all persons in each county qualified to practice according to the provisions of this act. For such services the clerk shall receive from each applicant the sum of one dollar for such registration.

Sec. 8. All laws and parts of laws in conflict with this act are hereby repealed.

An Act to amend Section seven (7) of an act entitled "An act to define veterinary medicine and surgery, and regulating the practice of veterinary surgery or any branch thereof in the State of Indiana," approved March 11, 1901, and declaring an emergency.

[S. 241. Approved March 11, 1903.]

Section 1. Be it enacted by the General Assembly of the State of Indiana, That Section seven (7) of an act entitled "An act to define veterinary medicine and surgery, and regulating the practice of veterinary surgery or any branch thereof in the State of Indiana," approved March 11, 1901, be amended so as to read as follows: Section 7. All persons desiring to practice veterinary medicine and surgery in the State of Indiana shall file with the clerk of the circuit court of the county in which the applicant resides, the necessary evidence as to the qualifications to entitle them to practice according (to) the provisions of this act. Upon filing such evidence the clerk shall issue to such applicant a certificate to practice in accordance with the provisions of this act, in the State of Indiana, such blank certificates to be furnished by the State Board of Health. The clerk of the circuit court shall keep a record of all persons in each county qualified to practice according to the provisions of this act. For such services the clerk shall receive from each applicant the sum of one dollar for such registration.

Sec. 2. Whereas, an emergency exists for the immediate taking effect of this act, therefore the same shall take effect and be in force from and after its passage.

ADAMS COUNTY.

L. H. Zigler, Monmouth.
Thomas M. Woodruff, Decatur.
Henry F. Emmick, Bern.
George Emmick, Linn Grove.
James Wagner, Decatur.
C. V. Connell, Decatur.
Joseph Yoder, Bern.
E. H. LeBrum, Decatur.
Wm. F. Schug, Bern.
R. A. Andrews, Decatur.
John S. Mosine, Bern.
Reuben Woodruff, Decatur.
Aaron Bricker, Geneva.
Atwood Buckmaster.

ALLEN COUNTY.

Joseph T. Hunter, Hunterton.
Leroy Blaxburn, Fansler.
Henry A. Reed, 808 Harrison St., Ft. Wayne.
Walter Langtry, Spy Run Ave., Ft. Wayne.
Kyle Gaskill, 909 Huffman St., Ft. Wayne.
William F. Meyers, 119 Washington Boulevard, Ft. Wayne.
Stephen Young, R. R. No. 6, Ft. Wayne.
John B. Archer, Arcola.
John F. McCormick, Hellers Corners.
George W. Hines, F. R. D. No. 3, Churubusco.
Howard T. Carpenter.

BARTHOLOMEW COUNTY.

Wm. A. Dryden, Columbus.
J. D. W. Aspy, Hope.
Bruce Burns, Elizabethtown.

BENTON COUNTY.

Mell Kendall, Kingman.
Jeremiah L. Skeen, Boswell.
Chas. B. Moore, Atkinson.
W. A. Baker, Fowler.

BLACKFORD COUNTY.

Frederick W. Anderman, Hartford City.
James B. Fear, Montpelier.
Alva Murphy, Montpelier.
I. L. Rhine, Montpelier.

BOONE COUNTY.

W. H. Moler, Lebanon.
Charles Wesley Gosnell, Lebanon.
Geo. W. White, Lebanon.
E. A. Schneck, Lebanon.
F. H. Horner, Thorntown.
O. A. Nelson, Thorntown.
Isaac D. Reyneirson, Jamestown.
Jake Strum, Zionsville.
George W. T. Byrket, Zionsville.
Hugh T. King, Zionsville.

BROWN COUNTY.

Not reported.

CARROLL COUNTY.

O. P. Wilson, Delphi.
Harrison Wilson, Delphi.
Parker Justice, Delphi.
Ziba Allen Redding, Delphi.
Michael Hoover, Darwin.
Monroe Cook, Darwin.
LaFayette Everett, Pyrmont.
Charles Burge, Camden.
O. T. Campbell, Flora.
S. A. Cook, Burlington.

CASS COUNTY.

James W. Claey, Logansport.
David Vanaman, Logansport.
Robert Benson, Logansport.
Robert Pasley, Logansport.
Ira Funk, Royal Center.

CLAY COUNTY.

Oatman F. Kirk, Clay City.
Henry Ottis Woodrow, Clay City.
Abraham Yoder, Clay City.
John A. White, Clay City.
Clarence Edwin Baker, Clay City.
W. H. Payne, Asherville.
Thomas Walsh, Brazil.
William Helton, Center Point.

CLARK COUNTY.

Newton H. Coombs, Memphis.
Mead B. Spurgeon, Memphis.
James H. Noe, Nabb.
J. C. Latimer, New Washington.
William T. Duerson, Bethlehem.
Chas. S. Hay, Jeffersonville.
George W. Knorr, Jeffersonville.
Daly G. Watkins, Otto.
John A. Stutesman, Oregon.
Lewis C. Johnson, Oregon.

CLINTON COUNTY.

Isom Enoch Scripture, Frankfort.
Owen McDole, Mulberry.
Robert B. Miller, Gaylor.
Nathan B. Coombs, Mulberry.
W. T. Thompson, Frankfort.
Sheldon R. Crow, Rossville.
Daniel Weidner, Mulberry.
DeWitt C. Smith, Frankfort.
George Smith, Frankfort.
William W. Wilds, Kirklin.
Sam Harding, Kirklin.

CRAWFORD COUNTY.

A. C. Allstott, Taswell.
Jerry Belcher, Taswell.
Geo. M. D. Key, English.
A. Tilery, English.
James F. Adkins, Grantsburg.
Elias McDonald, Leavenworth.
E. R. Sellers, Fargo.
Samuel H. Miller, Grantsburg.
Sam Doddo, English.

DAVIESS COUNTY.

Thomas O'Bryan, Cornettville.
Fidel Zimmerman, Washington.
A. W. Burris, Alfordsville.
M. B. Holly, Alfordsville.
George W. Bolin, Washington.
Wm. Seneff, Odon.
J. A. J. White, Alfordsville.

DEKALB COUNTY.

David N. Fich, Auburn.
James W. Bishop, Auburn.
J. A. Yeagy, Waterloo.
John W. Tyson, Butler.
Geo. W. Zigler, Butler.

DECATUR COUNTY.

O. M. Burns, Sardinia.
G. S. Coffey, Sardinia.
A. D. Gailbraith, Greensburg.
Samuel Eubank.
C. B. Ainsworth.

DUBOIS COUNTY.

Nelson Stone, Huntingburg.
Harry Miller, Huntingburg.
John Griffin, Johnsburg.
Henry Nichaus, Huntingburg.
William Borman, Huntingburg.
William R. Cato, Huntingburg.
Anthony Miller, Huntingburg.
Thomas Jeffers, Huntingburg.
Clemens Henke, Jasper.
George W. Ratliff, Kyana.
Ninian Hawkins, Jasper.
Jacob Burger, Jasper.
Thomas Striegel, Celestine.
John M. Striegel, Celestine.
William A. Curry, Duff.
Thomas C. Johnson, Ireland.
Frank Krans, St. Anthony.
Daniel Formohlen, Holland.
Frank Klee, Knoxville.

DEARBORN COUNTY.

W. H. Zile, Kyle.
George Ragsdale, Aurora.
Ed. Applegate, Aurora.
Ed. Cooper, Kyle.
Francis Swales, Bright.
James W. Swales, Bright.
John Axby, Lawrenceburg.
R. S. Jackson, Lawrenceburg.
W. A. Axby, Harrison, Ohio.
Leonard Axby, Lawrenceburg.
Lewis A. Licking, Farmers Retreat.
Charles F. Stout, Dillsboro.

DELAWARE COUNTY.

James Ward, Muncie.
John Douglass, Muncie.
F. L. Botkin, Muncie.
O. L. Boor, Muncie.
Stewart Muterspaugh, Yorktown.
Archie H. Stewart.
Charles E. Goodwin.

ELKHART COUNTY.

Lewis Boyer, Goshen.
George W. Pollock, Goshen.
Moses Shellhamer, Goshen.
William J. Armour, Goshen.
Abraham B. Hay, Goshen.
George E. Miller, Goshen.
George O. Smith, Goshen.
Isaac G. Lehman, Elkhart.
Benjamin F. Moyer, Elkhart.
Joseph F. Harris, Elkhart.
Payson Schwin, Elkhart.
William A. Schafer, Elkhart.
Joseph Y. Lehman, Wakarusa.
Charles Roseburg, Nappanee.
Moses Sailor, Nappanee.
Isaac Sailor, Nappanee.
Joseph Weiel, Vistula.
Rudolph E. Bollinger, Millersburg.
Charles W. Roach, Millersburg.
Daniel A. Stumph, Nappanee.
Frank McFarren, New Paris.
Rufus M. Leeter, Elkhart.
John A. Graham, Elkhart.
O. F. Brusman, Elkhart.
Amos Herrington, Wakarusa.

FAYETTE COUNTY.

A. P. Helvie, Connersville.
John C. Harr, Connersville.
J. H. Pattison, Connersville.
J. R. Lair.

FLOYD COUNTY.

Thomas B. Love, New Albany.
Richard F. Bowling, New Albany.
Lewis Spirzel, Galena.
Robert F. Bradley, New Albany.
Geo. W. Knorr, Jeffersonville.
Andrew Sears, Georgetown.

FOUNTAIN COUNTY.

W. W. Luke, Covington.
A. B. Carter, Covington.
Harry E. Longnecker, Covington.
Marion Shepherd, Stone Bluff.
A. W. Bonebrake, Yedda.
John M. Bonebrake, Steam Corner.
Jasper Claugh, Veedersburg.
George Dice, Stone Bluff.
Lewis W. Roberts, Wallace.
John D. Trott, Attica.
Elijah Meyers, Wallace.
I. J. Walker, Veedersburg.
W. P. Robins, Newton.
Charles Frazier, Hillsboro.

FRANKLIN COUNTY.

Anthony Waber, Oldenburg.
John Dudley, St. Peters.
Robert Hanna, Brooksville.
E. H. Erganbright, Brooksville.
Joseph Amehein, Brooksville.

FULTON COUNTY.

Noah Norris, Rochester.
William A. Ward, Rochester.
L. W. Strong, Akron.
William C. Miller, Kewanna.
Henry A. Ward, Rochester.
Charles E. Kepler, Tilsa.
Andrew Jackson, Kewanna.
John Burrous, Fulton.

GIBSON COUNTY.

Wm. F. Thorn, Hazelton.
George Sidle, Ft. Branch.
W. C. Shannon, Princeton.
D. A. Davidson, Princeton.
A. L. Moore, Princeton.
J. V. Auburn, Princeton.
A. L. Marvel, Owensville.
C. Y. Davidson, Princeton.
D. F. Auburn, Haubstadt.
Sebastian Miller, Lynnville.
Olen B. Moore, Princeton.
Charles Rodgers, Francisco.
Theodore P. Montgomery, Oakland City.

GRANT COUNTY.

Ulva Vanarsdal, Upland.
W. M. Ball, Swayzee.
Wm. H. Rybelt, Swayzee.
Henry C. Davis, Fairmount.
D. C. Dean, VanBuren.
George M. Sharp, Sweetser.
Thomas P. Pully, Landersville.
F. C. Clealand, Jonesboro.
George W. Colton, Gas City.
William F. Anderson, VanBuren.
W. B. Wallace, Marion.

GREENE COUNTY.

John D. Allen, Worthington.
D. Younger, Lyons.
J. H. Wilson, Lyons.
Ezekiel Duncan, Lyons.
Theodore Plew, Lyons.
Albert I. Carrol, Marco.
Michael P. Cade, Lyons.
John Rollison, Lyons.
Charles White, Switz City.

HARRISON COUNTY.

Charles M. Krouse, Corydon.
A. C. Hickman, Corydon.
J. W. H. Littell, Corydon.
Isaac LaHue, South Corydon.
L. C. Roby, Central.
Philip Stonecipher, Milltown.
Brice W. Rigan, Maukport.
Benjamin F. O'Bannon, Elizabeth.
Daniel Best, Maukport.
William Overton, Crisps X Roads.
Schuyler Caroer, Maukport.
Geo. W. Dyer, Corydon.
F. M. Mosier, Palmyra.
J. W. Cunningham, New Amsterdam.

HAMILTON COUNTY.

Jesse Roudebush, Noblesville.
Wm. Hunnicutt, Cicero.
John Buscher, Noblesville.
Mark Harbit, Atlanta.
John Rigbee, Sheridan.
J. W. Warman, Arcadia.
J. W. Klotz, Noblesville.
J. W. Ramsey, Jolietville.
J. B. Sinclair, Atlanta.
D. W. Brathers, Centerville.

HANCOCK COUNTY.

George Hawkins, Carrollton.
W. W. Low, Charlottsville.
Cary Keaton, Maxwell.
William C. Knoop, Gem.
William Custer, Greenfield.
John L. Boring, New Palestine.
Amos C. Gombriel, Greenfield.
I. W. McGuire, Greenfield.
Alexander Low, Greenfield.
Claud P. Wilson, Greenfield.
Robert Smith, Greenfield.
Oren Paul Moore, Shirley.

HENDRICKS COUNTY.

J. M. Fronk, Danville.
S. D. Haney, Liston.
J. R. Crose, North Salem.
Lorenzo Tout, Pittsboro.
James Kersey, Amo.
S. A. Griffith, Pecksburg.
S. R. McGrew, Brownsburg.
N. T. Scott, Jamestown.
Joseph B Kinter, Danville.
Herbert L. Parker, Danville.
C. W. McClure, Clayton.
John T. Welton, Liston.

HENRY COUNTY.

M. V. Offult, Knightstown.
Wm. R. Earnest, Knightstown.
Elmer E. Steiner, Knightstown.
Chas. E. Fear, Knightstown.
Alfred Kersey, New Lisbon.
Aaron D. Brown, Mooreland.

HOWARD COUNTY.

J. O. Greeson, Kokomo.
LeRoy Thompson, Kokomo.
C. F. Bell, Kokomo.

HUNTINGTON COUNTY.

Eli Wise, Huntington, R. R. No. 4.
John J. Freehafer, No. 95 Lindsey St., Huntington.
D. R. Albert, Huntington, R. R. No. 7.
B. F. France, Huntington.
Elias Gibler, Huntington, No. 17 W. Market St.
H. N. Richards, Huntington, No. 52 Superior St.
O. C. Whitestine, Huntington, No. 60 Warren St.
John A. Smethers, Pleasant Plains.
John J. Riggs, Warren.
George A. Clampitt, Warren.
William J. Trussler, Warren.
Lemuel I. Bonewitz, Majenica.
Aaron S. Ruble, Plum Tree.
Joseph G. Sprowl, Warren.
O. Strander Price, Markle, R. R. No. 2.
Everett C. Conkel, Huntington.

JACKSON COUNTY.

Henry Rabber, Dudleytown.
Nathaniel C. Rucker, Tampico.
Fielden Lett, Jr., Seymour.
Jasper N. Miller, Vallonia.
Jesse S. Tuell, Vallonia.
Jacob Rider, Crothersville.
A. O. Belding, Crothersville.
David O. Brownshears, Crothersville.
William P. Holeman, Brownstown.
James W. Lewis, Brownstown.
Wiley Jones, Seymour.

JASPER COUNTY.

Harvey Kennal, Rensselaer.
Charles Pitzer, Kinman.
John Groom, Rensselaer.

JAY COUNTY.

Adolphus D. Montgomery, Bryant.
Benjamin F. Houser, Bryant.
Daniel Armatrout, Bryant.
James C. Culbert, Portland.
Jacob L. Fenning, New Corydon.
John W. Reed, Portland.
James G. McLaughlin, Salamonia.
Thomas Chamberlin, Salamonia.

JEFFERSON COUNTY.

J. B. Pheasant, Graham.
James R. Baxter, Madison.
A. H. McGlasson, Madison.
Louis Rice, Madison.
Henry Beatty, Hanover.
Andrew M. Payne, Saluda.
John W. Kreemer, Caanan.
Solomon Hicks, Hanover.
Thomas G. Taff, Saluda.
Grant Lee, Caanan.
Nicholas Foltz, Wirt.
Thomas Morris, Kent.
William C. Falkner, Deputy.
John B. Pohlman, Madison.

JENNINGS COUNTY.

James A. Work.
Daly J. Work.

JOHNSON COUNTY.

Harry E. Smock, Franklin.
David H. Shulters, Franklin.
David A. Williams, Franklin.
David N. Foster, Greenwood.
S. S. McClain, Rocklane.
James O. Zook, Morgantown.
William H. Taylor, Edinburg.
Jacob F. Pitcher, Samaria.
Millbourne Scott Tinker, Franklin.
Leon Ritchey, Franklin.

KNOX COUNTY.

Joseph Crane, St. Thomas.
Enoch S. Cox, Bicknell.
David Alkire, Sanborn.
J. S. F. Reed, Vincennes.
James T. Overbay, Wheatland.
W. P. Wallace, Monroe City.

KOSCIUSKO COUNTY.

Amos T. Greider, North Webster.
Thomas Ball, Silver Lake.
Charles Rager, Silver Lake.
B. C. Gouchenour, Warsaw.
Henry Rouch, Warsaw.
Michael Oswalt, Etna Green.
Erwin Dean, Etna Green.
Francis Downing, Warsaw.
Daniel E. Neff, Milford.
James Neff, Shakespear.
Stephen Strope, Atwood.
Benj. A. Hilderbrand, Warsaw.
Chas. M. Teegarden, Warsaw.
William A. Mabie, Warsaw.

LAGRANGE COUNTY.

Milo Cummings, Lagrange.
Hiram Nelson, Topeka.
Stephen P. Taylor, Wolcottville.
C. A. Brant, Lagrange.
T. S. Rogers, Shipshewana.
G. E. Crampton, Lenia.
Geo. W. Libey, Lenia.
Austin Yergin, Lagrange.
William Dicer, Wolcottville.
Levi Spidle, Wright Corner.
Charles E. Greenwalt, Topeka.
L. O. Delbow, Mongo.
William George Cameron, Wolcottville.
Ira B. Young, Wolcottville.

LAKE COUNTY.

C. E. Broad, Lowell.
Michael O'Hearn, Hobart.
P. Williams, Crown Point.
George Wooldridge, Crown Point.
T. W. Wood, Lowell.
J. W. Sanger, Lowell.
Fred Cramer, Hobart.

LAPORTE COUNTY.

W. D. Paxton, Laporte.
J. H. McClean, Laporte.
Judson C. Craft, Laporte.
John Matthews, Laporte,
Henry P. Cole, Westville.
Henry L. B. Coote, Michigan City.
Lien E. Hickman,

LAWRENCE COUNTY.

H. M. Burnham, Bedford.
Pleasant P. Helton, Heltonville.
Col. M. D. Isom, Mitchell.
Preston Ray, Leesville.
E. J. Keithley, Heltonville.
Edward L. Mitchell, Bedford.
Harrison D. Flinn, Leesville.
William T. Reynolds, Bedford.
W. A. Ragsdale, Bedford.

MADISON COUNTY.

Albert Krall, Ovid.
James S. Howard, Summitville.
Edward J. Merick, Lapel.
Jasper Pence, Orestes.
John Cramer.
Oris A. Carson.
W. W. Corner.
J. C. Rogers, Anderson.
Sylvester J. Warner.
Winfield I. Ross.
Pleasant Kisling.

MARSHALL COUNTY.

H. A. Myers, Plymouth.
James Graham, Tippecanoe.
Charles C. Bondurant, Bremen.
Josiah Ringle, Argos.
Charles McKinney, Bourbon.
J. M. Sherwood, Bourbon.
William Hildebrand, Teegarden.
James Drummond, Argos.
Jacob M. Stair, Walnut.
Frank L. Johnson, Tyner.
Elijah Stoneburner, Tyner.
Benj. Snyder, Bourbon.

MARION COUNTY.

William F. Long, Indianapolis.
David Anderson, Indianapolis.
T. A. Gentle, Indianapolis.
James M. Baxter, Indianapolis.
Henry Baxter, Indianapolis.
A. C. Pegan, Indianapolis.
John E. Pritchard, Indianapolis.
Fred A. Mueller, Indianapolis.
Evan H. Pritchard, Indianapolis.
Frank W. Brewer, Indianapolis.
Joseph A. Creedon, Indianapolis.
John Elliot, Indianapolis.
W. B. Craig, Indianapolis.
Louis A. Greiner, Indianapolis.
Joseph M. Greiner, Indianapolis.
Paschal O. O'Rear, Indianapolis.
Bertrand G. Orlopp, Indianapolis.
Robert F. Harper, Indianapolis.
Henry H. Lehman, Indianapolis.
Frank J. Muecke, Indianapolis.
John M. Hollenbeck, Indianapolis.
Samuel L. Rodibaugh, New Augusta.
Geo. H. Roberts, Indianapolis.
Samuel M. Springer.

MARTIN COUNTY.

Jacob Barns, Blankenship.

MIAMI COUNTY.

B. F. Ricebarger, Gilead.
J. L. Kling, Peru.
Jonas Hochsteller, Peru.
John W. Myers, Waupecong.
Maxwell Mast, Waupecong.
David Kercher, Gilead.
Charles E. Brownback, Peru.
Alva B. Carter, Converse.
James Means, Peru.
John Upshall, Peru.
Monroe Hosteller, Peru.
William Schindler, Macy.

MONROE COUNTY.

Earl E. Carpenter, Bloomington.

MONTGOMERY COUNTY.

Martin C. Graves, New Richmond.
James C. Miller, Elmdale.
Henderson J. Colman, Crawfordsville.
Wilson R. McLane, Crawfordsville.
John Muhleisen, Crawfordsville.
George W. Benfield, Crawfordsville.
Charles W. Pitman, Darlington.
Elias J. Baldwin, Waynetown.
W. A. Henthorn, Waynetown.
John C. Highway, Ladoga.
John F. Gillispie, Waveland.

MORGAN COUNTY.

John A. Brown, Wilbur.
W. S. Eubank, Martinsville.
Jeff T. Park, Waverly.
John T. Gurley.
T. P. Wheeler.
John Adams.
William Lloyd.
Frederick Wemer.
John W. Edwards.

NEWTON COUNTY.

J. H. Bishop, Morocco.
Clarence B. Davis, Morocco.
Edward Shanlaub, Morocco.
John Rosenbrook, Brook.
Otis H. Mohney, Goodland.
J. J. Schuh, Kentland.
Alva Rowley, Kentland.

NOBLE COUNTY.

George W. Copper, Ligonier.
George Edward Fisher, Kendallville.
Oscar D. Grawcock, Cherubusco.
Mathias W. Hawk, Cherubusco.

OHIO COUNTY.

Samuel Dorrel, Plate.

ORANGE COUNTY.

George H. Pierce, West Baden.
John J. Kirk, Bonds.
Richard Burton, Orleans.
Wm. C. Hammond, Youngs Creek.

OWEN COUNTY.

J. B. Archer, Spencer.
Fred Fiscus, Arney.
J. M. Fulk, Spencer.
Jacob Mitten, Arney.
Jno. W. McIntosh, Freedom.
I. L. Morris, Hausertown.
Jno. Ralston, Poland.
Tillman Rawley, Spencer.
Jno. H. Wright, Spencer.
Jno. Rice, Spencer.
Sullivan Greenwood, Spencer.
Jacob Miller, Patricksburg.

PARKE COUNTY.

C. W. Chezem, Tangier.
F. P. Jefferys, Carbon.
O. C. Newgent, Bellemon.
Robert W. Wilkenson, Bellemon.
William Cox, Rosedale.

PERRY COUNTY.

S. C. Main, Main.
Andrew H. Goffinet, Ranger.
Gus H. Goffinet, Leopold.
Henry T. Bassinger, Ranger.
Francis M. Bassinger, Ranger.
Samuel Aders, Bristow.
Joseph Frey, Tell City.
Isaac W. Faulkenbury, Union Town.
Daniel O. Harding.

PIKE COUNTY.

John A. Dyer, Spurgeon.
Grant Selby, Petersburg.
Reuben Burton, Petersburg.
John H. Cook, Pikesville.
Henry Sutton, Spurgeon.
Vinson France, Petersburg.
Fred Butler, Spurgeon.
James Canary, Petersburg.
Rufus M. Bass, Stendol.
Henry Gersiman, Spurgeon.
R. B. Lucas, Petersburg.
Oatman F. Kirk, Oateville.
William O. Lindsey, Union.
Sylvester Hale, Union.
Robert W. Craig, Otwell.
S. C. Selby, Petersburg.

PORTER COUNTY.

Andrew J. Smith, Valparaiso.
John H. Keys, Valparaiso.
N. Clark, Valparaiso.
E. E. Cunningham, Valparaiso.
G. B. Fowler, Kouts.
A. W. Couts, Hebron.
Wm. H. Croney.

POSEY COUNTY.

William Robinson, Mt. Vernon.
J. W. Moses, Mt. Vernon.
G. W. Slough, Mt. Vernon.
Henry Pate, New Harmony.
LeRoy C. Wilson, Poseyville.
J. H. Snyder, New Harmony.
Chas. E. Hudspath, Poseyville.
Wm. J. Stahl, Mt. Vernon.

PULASKI COUNTY.

Henry Weaver, Pulaski.
Benville Bruice, Winamac.
W. E. Frederick, Winamac.
William McCoy.
E. Timmorous.
Lester A. Leach.

PUTNAM COUNTY.

A. T. Foster, Fillmore.
George K. Loyd, Marton.
T. J. Ruark, Greencastle.
James C. Taylor, Greencastle.
T. A. Sigler, Greencastle.

RANDOLPH COUNTY.

J. E. Friar, Farmland.
William J. Clevenger, Farmland.
Martin Murphy, Union City.
John W. Hunt, Parker.
W. C. Clevenger, Winchester.
Joel Pickett, Winchester.
Clide W. Moore, Winchester.
John F. Grubbs, Modoc.

RIPLEY COUNTY.

Andrew Newforth, Sunman.
Frank M. Long, Indianapolis.
Samuel Johnston, Osgood.
Henry H. Horning, Ashten.
Cornet Yater, Holton.
James Murdock, Holton.
Resin Murry, Osgood.
George Roepke, Sunman.
J. W. Downey, Correct.
John Bowers, Napoleon.
Benjamin F. Mulford, Delaware.
George H. Huber, Ashton.
Alfred T. Breeden, New Marion.
Ignitz B. Levy, Millhousen.
William Schuhman, Versailles.
John W. Boldery, Milan.
Fred C. Shutter, Lookout.

RUSH COUNTY.

A. T. Warfield, Homer.
R. M. Wagoner, Moscow.
Clarkson Gauze, Carthage.
Harry A. Black, Mays.
Richard Hungerford, Rushville.
Lincoln Cruell, Rushville.
Frank Moore, Andersonville.
Charles E. Morris, Milroy.
Jeremiah T. Draper, Gwinville.
S Colvin, New Salem.

SCOTT COUNTY.

None.

SHELBY COUNTY.

Walter J. Williams, Bengal.
Thomas J. Fouty, Fountainville.
Jacob W. Wamack, Shelbyville.
James Crail, Shelbyville.
William Hultsch, Shelbyville.
Geo. Weinantz, Lewis Creek.
Moses W. Massesgale, Franklin R. R. No. 3.
Edgar Money, Marietta.
John T. Reaton, Morristown.
James B. Thompson, Waldron.
Joseph L. Wickes, Rays Crossing.

SPENCER COUNTY.

Elijah M'Coy, Gentryville.
Richard Haldesty Graham, Rockport.
Jas. T. Mattingly, Chrisney.
George Hitchcock, Newtonville.
Dan Wilmot, Rockport.
John Wilmot, Rockport.

STARKE COUNTY.

Emanuel Griffen, Knox.
John M. Stuck, Knox.
James Geddies, Toto.
E. P. Scisson, North Judson.
Chas. J. Benes, North Judson.
Thomas Fay, Knox.

STEUBEN COUNTY.

George B. Goodrich, Angola.
Elezer Luton, Angola.
James Merite, Angola.
Ward Woodhull, Angola.
George W. Reese, Angola.
Eugene Wheeler, Angola.
James C. McNett, Angola.
William Hillis, Fremont.
Enos Walters, Fremont.
Otto R. Ross, Pleasant Lake.
George Cogswell, Pleasant Lake.
Oliver Stayner, Orland.
George H. Dando, Orland.
Harry E. Stevens, Fremont.
Andrew J. Stout, Hamilton.
Wm. E. Coover, Angola.
H. M. Heckenlively, Angola.
Martin W. Burch, Metz.
Elbrige Butler, Salem Center.
Benjamin F. McGrew, Angola.

ST. JOSEPH COUNTY.

Robert McDonald, 402 W. LaSalle St., South Bend.
Charles M. Stull, 1847 S. Michigan St., South Bend.
Joseph W. Franks, 133 S. Michigan St., South Bend.
James M. Garrison, 129 S. Hill St., South Bend.
Edward Neddo, 209 S. Carrol St., South Bend.
Daniel W. Burt, South Bend.
William N. Baer, R. R. No. 1, South Bend.
Jacob D. Rowe, Lakeville.
Lawrence Dietel, Lakeville.
Joseph Haas, Lakeville.
Adam Dietel, Jr., Lakeville.
Adam Rowe, North Liberty.
Daniel Shenneman, North Liberty.
Melvin A. Robertson, South Bend.
Adelbert Albright.

SULLIVAN COUNTY.

Ed. Billman, Sullivan.
John Hunt, Sullivan.
Martin V. Moser, Sullivan.
E. K. Asbury, Farmersburg.
Peter Frakes, Fairbanks.
James Drake, Fairbanks.
Ed. Wells, Merom.
William Bledsor, Sullivan.

SWITZERLAND COUNTY.

None.

TIPPECANOE COUNTY.

John W. Miller, Lafayette.
R. A. Craig, Lafayette.
H. E. Titus, Lafayette.
A. W. Bitting, Lafayette.
A. D. Matthews, Lafayette.
Edgar N. Stout, Lafayette.
Basil Minnlear, Lafayette.
Frank S. Cooper, Lafayette.
J. C. Smitzer, Clarks Hill.
J. W. Mullen, Lafayette.

TIPTON COUNTY.

J. J. Herron, Tipton.
Jonathan G. Tichenor, Tipton.
Simon Wines, Tipton.
Butler Smith, Tipton.
Jesse Mendenhall, Atlanta.

UNION COUNTY.

G. R. C. Wright, Cottage Grove.
J. M. Templeton, Fairfield.
Charles Mardock, Liberty.
H. P. Edsel, Fair Haven.
Charles A. Clark, Cottage Grove.

VANDERBURGH COUNTY.

C. F. Martin.
Michael Bauer.
J. H. W. Bauer.
Michael Betz.
Sylvester D. Lett.
H. C. Jorgenson.
George J. Tyner.
J. R. Mitchell.
Robert Dryborough.
John A. Bradwell.
Joseph Knowles.

VERMILLION COUNTY.

John Bales, Clinton.
John D. Strum, Dana.

VIGO COUNTY.

Wm. Leslie Christy, Terre Haute.
Clement V. Elliott, Terre Haute.
Cell Frisk, Terre Haute.
Francis J. Ulm, Terre Haute.
Henry T. A. Meissel, Terre Haute.
S. V. Ramsey, Terre Haute.
Wm. E. Jackson, Terre Haute.

WABASH COUNTY.

H. E. Jackson, Wabash.
O. S. Sweet, Wabash.
Clyde Hess, Wabash.
Solomon Ulshafer, Urbana.
B. E. Stauffner, North Manchester.
David Baker.
Isaac Platt.

WARREN COUNTY.

Thomas Bartlett.

WARRICK COUNTY.

John Beardsley, Ferdinand.
Charles Turpen, Lynnville.
Luther West, Stephenson.
Ed. Gander, Canal.
Eli Goad, Boonville.
John J. Taas, Scalesville.
Elias Fisher, Canal.
Nicholas Fehd, Canal.

WASHINGTON COUNTY.

John Holsapple, Campbellsburg.
Richard Mills, Saltillo.
David C. Green, Bono.
F. H. Riester, Salem.
Richard Greene, Saltillo.
Grant S. Haley, Rush Creek.
Jacob Denny, Millport.
T. S. Taylor, Salem.
Chas. W. Gresham, Fredericksburg.

WAYNE COUNTY.

Henry L. Morgan, Abington.
Levi C. Hoover, Richmond.
George C. Ferling, Richmond.
Chas. T. Crump, Greensfork.
Jacob A. Gates, Centerville.
Wm. B. Owen, Richmond.
Leonidas N. Cox, Richmond.
Allthus Bennett, Richmond.
John D. Hawkins, Richmond.
Jabes H. Kenworthy, Williamsburg.
Matt Schall, Richmond.
Chas. Betz, Cambridge City.
G. W. Hardwick, Williamsburg.

WELLS COUNTY.

John A. Hamilton, Liberty Center.
Samuel McAfee, Liberty Center.
Joseph W. Park, Uniondale.
Henry H. Lassiter, Uniondale.
A. W. Smith, Bluffton.
J. E. Laidlaw, Bluffton.
G. W. Puckner, Bluffton.
Christian Graft, Jr., Echo.
V. K. Grim, Echo.
Geo. W. Kiser, Ruth.
Joel Pugsley, Bluffton.

WHITE COUNTY.

Geo. W. Sangster, Monticello.
Jas. A. Reed, Monticello.
Sam Hornbeck, Monticello.
John Hanson, Monon.
George D. Doctor, Wolcott.

WHITLEY COUNTY.

B. F. Zent, Land.
J. W. Clark, Columbia City.
Charles P. Hine, Columbia City.
Isaac P. Brown, Columbia City.
Al. Hatfield, Larville.
Casper Workman, Cherubusco.
Edward Flanigan, Cherubusco.
Evan Coulter, Cherubusco.
George W. Coulter, Cherubusco.
Frank E. Long, Cherubusco.

SUMMARIZED REPORT OF THE STATE VETERINARIAN.

By A. W. Bitting, D. V. M., M. D.

The following is a summarized report of the office of State Veterinarian for the year ending October 31, 1903.

The work of the State Veterinarian is naturally divided into two parts, that of police control of certain contagious and infectious diseases, and that of investigating such diseases as may seem advisable from an economic standpoint.

The work of police control has been less than in the two preceding years. There were only three outbreaks of glanders among horses, and only twelve were condemned, the first horse being destroyed at Denham, Pulaski County. It had been brought into that locality from Illinois. Three horses were destroyed at Butler, DeKalb County, and it is possible that these may have been infected from the outbreak that occurred in that neighborhood the year before. The eight animals recently destroyed in Allen County were owned by a contractor from Ohio, and were used in the construction of railroad embankment. It is believed that there has been little exposure to native horses by this camp. Those remaining are in quarantine. The disease has been reported a number of times by health officers, but happily upon investigation it has been found to be a mistaken diagnosis. The disease most frequently taken for glanders is petechial fever. It is therefore evident that we are free from this disease and that the only danger lies in bringing it in from without.

The number of cases of sheep scab has been very materially lessened, but still remains larger than it should be. A special effort was made to trace the source of all cases reported with the result that out of 4,506 cases, 4,161 had been obtained from the stock yards for feeding purposes. This leaves only 345 cases as having come from our own flocks. It further shows that the strong measures that are taken to prevent the spread of infection are defective in some details and that something yet remains to be done.

About one hundred cases of rabies are known to have occurred last year. Dogs, cattle, horses, and hogs have been the principal victims. Two persons are known to have died. This disease is apparently upon the increase. It is a trouble upon which there is much confusion in diagnosis because of inaccurate, popular articles concerning it. The symptoms of the trouble are much more characteristic than of many other diseases that are better known. There is no doubt, too, that many cases of supposed rabies is meningitis in some of its forms. This office will undertake to set out the differences between this disease and others in which the nervous element is a prominent feature, with the hope that it may assist in making a proper recognition.

The slaughter of southern cattle has steadily increased, and permits are granted to W. M. Akin & Son, Evansville; to the Evansville Abbatoir Co., of Evansville; to W. R. Jones & Sons, Brazil; and to the Bash Packing Company, Fort Wayne, to receive them. An inspector has been appointed in each city to see that the regulations are carried out. To date, not a native animal has contracted the disease.

The usual number of cases of blackleg, tuberculosis, Texas itch or mange and other diseases have been dealt with as conditions warranted.

Last year the greater part of the research work was directed upon diseases of sheep. The result was published as a joint work with the veterinary department of the Purdue University Experiment Station. The bulletin has proven to be one of the most popular issued from that institution. It has been called for by sheep owners in every State in the Union. This year the investigations have been wholly directed along swine diseases. The results have been brought together and the manuscript is ready for publication. It is hoped that a similar arrangement may be made for its appearance as a special bulletin the same as for the "Diseases of Sheep." It is believed that this work will have a much larger value than the work of last year, as the capital invested in swine is far greater, being more than $20,000,000 in this State. The losses are likewise large, and if the information given will assist in saving the one one-hundredth part of those now lost, it will mean a gain of from $20,000 to $50,000 annually in this State. Information upon swine diseases is not readily available to swine breeders, and it is hoped that the publication will serve a good purpose. The work was largely done by Dr. R. A. Craig, Assistant State Veterinarian.

FINANCIAL SUMMARY.

Month.	*Salary.*	*Assistant.*	*Expenses.*	*Animals.*	*Supplies.*	*Total.*
November......	$100 00	$25 00	$17 09	....	$26 60	$168 69
December......	100 00	20 00	83 18	....	7 26	210 44
January	100 00	30 00	71 57	$8 00	....	209 57
February.......	100 00	33 00	50 79	....	30 00	213 79
March.........	100 00	25 00	69 31	....	....	194 31
April..........	100 00	24 00	51 06	24 00	....	199 06
May...........	100 00	23 00	38 62	....	22 60	184 22
June	100 00	122 00	34 95	....	....	256 95
July...........	100 00	104 00	44 88	....	41 20	290 08
August	100 00	85 00	17 11	....	....	202 11
September	100 00	42 50	....	....	35 54	178 04
October........	100 00	97 50	25 97	64 00	5 10	292 57
	$1,200 00	$621 00	$514 43	$96 00	$168 30	$2,599 73

Amount appropriated, $3,000.00.

Amount reverted to the State, $400.27.

PROCEEDINGS

OF THE

Indiana Horticultural Society.

MIDSUMMER MEETING AT PENDLETON,
AUGUST 4 AND 5.

1903.

MORNING SESSION.

Tuesday, August 4, 10:30 a. m.

The meeting was called to order by its President, Warder W. Stevens, of Salem, Indiana, who said:

We are now ready to begin this meeting. It seems that our Committee on Music has not arranged any music for us this morning, so we will first have the invocation by A. W. Shoemaker.

Mr. A. W. Shoemaker: Our Father and our God, as we begin the session and services of this hour we think it meet and fitting that we should call upon Thy most excellent name to thank Thee for the blessings that have been received from Thy hands, and to petition that Thy care and guidance shall be over us and shall direct us in these sessions today and tomorrow. As we come before Thee, our dear Heavenly Father, may we have a sense of our dependence upon Thee, and the necessity of having our Father's direction. We know that we strive in vain without Thee, and we must not forget Thee. Thou sendest the sunshine and rain down on the harvest to mature the crops. Grant that we may remember that we are working together with Thee, and in Thy name, and grant that we may have a sense of dependence upon Thee. Direct us to Thy name's honor and glory, and when death claims us may we be prepared to enjoy Thee forever. Amen.

President Stevens: We will now have a word of welcome by C. C. Mays, of Frankton.

C. C. Mays: Mr. President, Ladies and Gentlemen—In this the annual meeting of the State Horticultural Society, it is my pleasure to welcome you here, and if what I may say is not clothed in the most beautiful language, I want you to know that my intentions are good, and that my heart is in the right place, and that it warmly beats a welcome to you one and all.. I would only say that which should be said to an audience like this assembled here, the best, the representatives of the most advanced ideas of farming in the country.

The time has come in our societies in Madison County when we assemble as we do here, we do not do it for pleasure's sake nor from a social standpoint alone, but we gather for the purpose of broadening and enriching our minds in the things that will make us better farmers, better stockmen, dairymen, and, in fact, all that the ideal farm comprises. The enlightened farmer of today recognizes the fact that farming is something more than a mere turning of the soil, that it is a science within itself, and that he who would follow it in the future must do it in accordance with scientific principles, and that he who may tread the clods turned by the plowshare may be in all sense a farmer.

This Society stands for and is but the mirror through which we may see and know, as it were, the better and brighter side of him that the world calls farmer; it is but one means of finding ourselves and knowing our environments.

There was a time, and you all know it, when the word "farmer" in the social world meant "beneath us," but this haze of prejudice through which the people of the world may have looked is being cleared away, and in the farmer they see one of the most potent factors of the world's progress—that from the farm comes the purest and best American blood—the best sinew and the best and purest American manhood and womanhood. But time alone has not wrought this change; the farmer himself, the experiences of the past, our schools and colleges, all have been factors in making the farmer of today a cosmopolitan.

The progress of the past, the demands of the present and the future urge us ever to be active and awake to the conditions, if we would keep abreast of the times. If we would succeed in the future as a farmer, if we would develop the science that is ours, we must know better than we ever knew before, the art of farming, and all that is kindred thereto, and in doing this we can not build alone on the experiences of the past. True, these are helps, but we must have other and broader training than the farm alone. We must look to our agricultural colleges; for from them we get the advanced ideas and the results of the newest and latest experiments. Our State has given to us for the benefit of the farmer Purdue University, which is more and more demanding a recognition from the farmers of today, and we as farmers should lend it our aid.

I believe that it rests with the farmers to see that this institution does not lack for support from the State.

In concluding, allow me to say that I am glad so many are here, for it only tends to show the interest and the desire of one and all to have a most successful meeting both today and tomorrow. I am glad to welcome you here, in one of the best and most enlightened farming communities of the State of Indiana. You are in Spring Valley. This is the garden spot of this part of the country, and these good people will take care of you while you are in their midst, so make yourselves at home, and feed on the good things of the land.

To conclude, in behalf of the Horticultural Society of the South, and in behalf of the Society Central, and in behalf of the Practical Farmers' Club of the North we welcome you to the best country in the greatest State in the Union. Lastly, may I caution you that the success of this meeting is largely what you make it. I thank you.

President Stevens: Friends of Madison County and good people of the vicinity—On behalf of the Society I wish to say that we accept this cordial welcome in the spirit in which it is tendered, and you may rest assured that we will do justice to the occasion and will prove ourselves grateful for the feast you have prepared for us, and I am sure you will have evidence of that fact before we leave you. I thank the committee that selected this place for our summer meeting. I think possibly they had been here before and knew something of the generosity and hospitality of the good people of this section of the country. This is the first time that I have ever had the pleasure of visiting this particular locality, and you must see that I have been very favorably impressed with your country, and I believe that the gentleman that has just had the floor has kept along the line of truth very closely, because I think you have the garden spot here. I also feel that we are welcome when we are in a community of farmers like this. I see you have three local societies here, and wherever I go I find an interest. I know that you organizations are progressive. We will not have progressive farmers until we get them to belong to some club. It has been my pleasure for the last two or three years to belong to a farmers' club, so I speak with experience along that line. I know this club does us a great deal of good; in fact, as I said before, we will not have progressive farmers this day until we belong to some society. We must keep up with the times. The time has passed when a farmer can go it alone. He must have counsel and advice if he makes the greatest success.

While we have met here for our summer meeting, it is a meeting of pleasure as well as of business, and while we are enjoying ourselves and having a good time we must do some business. We must also take up the work of the World's Fair at St. Louis next year. We have an appropriation from the State of $5,000, which, in my capacity as chairman of the committee, I intend to turn over to this Society for their management. We have the sum of $5,000 to enable us to prepare a creditable exhibit for that fair. A space of three thousand square feet has been secured for this exhibit. Now at this time I deem it proper that this work be started and pushed vigorously from this time on. Some of the preliminary steps have been taken in order to secure the products that had to be taken care of and placed in cold storage for this coming exposition, but the main work of this committee is yet to be done, and I think it necessary that this work be placed in the hands of a committee to superintend and manage it throughout. Now, I do not care to assume the responsibility of managing this work. There are others more capable of doing it, and can do it, and for this reason I prefer naming a committee that will take this work in hand and appoint various persons throughout the State to collect exhibits, to care for them, etc. This committee will consist of W. B. Flick, of Lawrence; Sylvester Johnson, of Irvington, and J. C. Grossman, of Wolcottville.

This appropriation, I think, is sufficient for Indiana to make the finest exhibit that it has ever made at any of our World's Fairs, or any fair in the whole country. We must have a good exhibit. We want exhibits from different counties; but, of course, they can be put together and be counted as the Indiana exhibit. Of course we want to encourage this if we can. We would like to have the separate county exhibits, but we must all come in on one grand whole exhibit as the Indiana Exhibit. There is a great deal of work to be done right away, and the responsibility of this rests with the committee that I have named, and I hope that every one will help them by suggestions and every way. If you are going to St. Louis next year with an exhibit I hope you will confer with this committee and give them the benefit of your suggestions. While we may not produce fruits of various kinds as extensively as some of our neighboring States, there is no doubt in my mind but what we produce the best. Horticulturists of our State have captured some of the best rewards that have ever been extended to any one in this country and some foreign countries as well. There is no reason why with this appropriation we may not put in an exhibit at the World's Fair at St. Louis that will redound to the credit of the State, and be of some particular utility to the State of Indiana in building up our Horticultural interest throughout the State. There is no doubt but what we have fine lands; lands just as well adapted to the various kinds of fruits as can be found in any part of the country, but they need to be developed, and it is along this line that the Horticultural Society wants to work, not alone to make a show, but along the line of developing an interest in our State.

Again I will say that we are glad to be with the good people of this county, and in view of the fact that we have detectives in watching over us I warn all of you to be on your good behavior.

C. C. Mays: I wish to say that I hope the good people will take the reference to the detectives in the spirit in which I gave it.

President Stevens: I wish to state that there is another committee we must have a report from at this meeting, and that is the Committee on Fees and Salaries. It is very important that this committee get together and formulate their report and let us have it sometime during this meeting.

I believe this is all we have this morning. If any one has any miscellaneous business to offer or any suggestions to make, now is the proper time.

W. B. Flick: I wish to enroll every horticulturist, male and female, at this meeting, and I have blanks on purpose for filling out, and I should like to have your names and addresses, and when you became a member, if you are a member. I wish those who are not, would become members. It has been announced by our President that the work is great, and we want to develop Indiana to the highest extent. Persons who are members of the Society have more opportunity to be workers than those who are not members. It will cost those not belonging to a local society $1.00 per year for himself and his family, and those who belong to a local society 50 cents. One 50 cents goes to the local society and the other to the State. I leave these blanks on my table and I hope you will take advantage of this. There are several reasons why I want these. One is so that I can keep you informed with regard to the transactions of the Society, and can send you programs, circulars, etc. This will be of much use to you. Those who are members of the Society and pay their fees get an annual report, which is very valuable to all fruit growers, housekeepers and farmers. This year's report is a very large one; it has the best ideas and best thoughts of the best horticulturists in the State on fruit growing, planting, and, in fact, all phases of the fruit question; men who have had large experience, have good varieties, and know what varieties are best suited to certain localities of the State. It has some early papers and reminiscences of our country, and among them a letter from Henry Ward Beecher, written in 1884, in which he extols the beauty of our State and tells us what a good country we have. We have a paper of his on Blight, which contains many things that have not been improved upon today. These papers show the character of the man, his ingenuity and the carefulness with which he studied and investigated any subject. I have a letter from the Chief of the Department of Horticulture of the St. Louis Exposition; a letter in which he gives some information in regard to our work there, which will be embraced in circulars that will soon be sent to you. We are given about three thousand square feet, which has already been mentioned by the President. Nothing is furnished but the floor. All tables, plates, and appliances of every sort are to be furnished by the State. An individual may be represented at this fair. If you send fruit it will have your name and address to show who grew the fruit. Heretofore this has not been the case. If you have fruit that you think is worthy of merit you will get full credit for it. This can show in the county exhibit, and also in the State exhibit, so you see. we can work together to advantage. One should have a number of duplicates of the same variety, and I think we should have from three to five car loads of apples in storage this fall for use until fruit comes next year. As soon as it can be done the committee that has been appointed this morning will issue some circulars of information in regard to collecting exhibits. We will have to secure persons in different parts of the State to oversee the matter in their immediate neighborhood. This work will be voluntary. We expect to pay for fruit and getting it together, but we can not give an exorbitant price. It is true we have $5,000 but we will have to be economical to make it hold out.

President Stevens: Has any other member a suggestion to offer before we adjourn for noon? The meeting is adjourned until 1:30 p. m.

AFTERNOON SESSION.

Tuesday, August 4th, 1:30 P. M.

President Stevens: The audience will please find seats and we will proceed with our program. In view of the fact that the flowers are now here, I believe they should be judged while they are at their best, and I will appoint the following Committee on Flowers: Mrs. Johnson, Mrs. Burton, and Mrs. Evan Davis.

The Committee on Fruits can take up the work just as soon as they ascertain the fruits are all on the tables. I will appoint as this committee W. S. Ratcliff, J. C. Thomas and E. Y. Teas. The first number on the program this afternoon will be a recitation by Mary Elizabeth Mozingo. (The little seven-year-old child spoke one piece and was recalled for another.)

President Stevens: The next thing will be a discussion of the Catalpa, by E. Y. Teas, of Centerville.

A Member: Mr. Teas will not be here until later.

President Stevens: The next will be a recitation by Minnie Lunney, of Summitville, and following this will be the subject of "Children's Gardens," by W. W. Woollen, of Indianapolis.

CHILDREN'S GARDENS.

W. W. WOOLLEN, INDIANAPOLIS.

A mother asked a philosopher at what age she should commence the education of her child. He inquired of her how old the child was, and was told that it had seen six summers. Learning this, he said: "Madam, you have lost five years." As a twig is bent, so will the tree be inclined, is an adage, the verity of which is well understood by horticulturists. Another adage is, bring up a child in the way it should go and it will not depart from the way in its old age. This is why I am an advocate of children's gardens.

The word garden is a very comprehensive one. In this paper I shall use it in a limited sense, confining myself to kitchen and flower gardening.

No two factors more largely enter into the real and substantial comforts of rural life than the raising of poultry and the cultivation of kitchen gardens. Of the first of these we have abundant statistics showing that the poultry output of this State, not taking into account that used by the farmers, is worth more to the State than any of the other products of its farmers. It is to be regretted that we do not have such reliable statistics as to the products of our gardens. When, however, we take into account the immense population of the towns and cities of the State who are fed from its gardens and those from other States, we know that the value of their product is almost, if not quite equal to that of the poultry product, and this is true without regard to the large amount of such products used by the families of our farmers and horticulturists. And who of us, when we stop to think, does not know how much the kitchen gardens mean to these farmers and horticulturists? From them they draw their table supplies during the entire year. Indeed, without their supplies, ours would be a poor, miserable existence. As civilization advances, we are learning more certainly that it is well for us if we eat more fruit and vegetables and less meat. More than a hundred years ago, a distinguished French naturalist announced that if all the birds of the world were destroyed, in nine years thereafter, the earth would be without vegetation and uninhabitable for man. One would think that thus knowing the value and importance of our vegetable life and the importance of our kitchen gardens, we would at least give them a considerable part of our best thought and attention. Do we do it?

As a rule when Spring comes, the average farmer goes into what is known as his garden lot and rakes up the weed stocks and rubbish which had been allowed to grow and accumulate there the previous year, and burns them preparatory to plowing the ground. Of course, the weeds that were permitted to grow there last year produced a great crop of seed, which in a dormant state remained in the soil for the reseeding of the garden for another crop of weeds. After plowing the garden, the farmer turns it over to his wife to plant and cultivate. Not long ago, a premium article in the Indiana Farmer, written by a farmer's wife, told how she managed her work to the best advantage. In it she told how she got up at 4 o'clock in the morning and commenced her day's work and with what regularity she did it each week. She told how she cooked for her family and washed the dishes; how she milked the cows, cared for the milk and churned the butter; how she washed and ironed the clothes; how she did the family sewing and mending, and how she managed and worked the garden. After doing all this, she managed, if I remember correctly, to get one half day's rest in each week, and strange to say she seemed to be thankful for this. No wonder so many farmer's wives are sent to our insane asylums. The only wonder is that more of them do not go there and to an early grave. But this is a digression. The wife, as we have seen, tackles the job, and to her credit does her best with such vegetables as can be produced in the open from seed, with a hoe and rake. The farmer gives no attention to, and as a rule, knows but little about making a hot bed and taking care of it. One with glass to cover it to him is an unknown quantity. His plants are bought for a price and after being planted are turned over to the wife to be hoed and cared for. When the hot summer days come, the wife finds the job too much for her and then the weeds grow. This manner of gardening should be remedied. How is it to be done?

Prof. Liberty H. Bailey of Cornell University, the most distinguished writer upon "The Nature Study Idea" in the United States says, "If one is to be happy, he must be in sympathy with common things. He must live in harmony with his environment. One can not be happy yonder nor tomorrow; he is happy here and now or never. Our knowledge of common things should be great. Few of us can travel. We must know things at home." To "know the things at home" and have a knowledge of the "common things" about us should be the keynotes of the farmer and his family in the conduct of the farm, orchard and garden.

Have you never noticed how much children are interested in the "common things," the plants and their homes? And how much there is in these to interest not only the children, but all of us! How does a plant grow? Of what place is the plant a native? What is its name, and why? What is its history? What are its uses? Has it been improved, and if so, how? Is it susceptible of further improvement? How is it fertilized? What kind of soil is required for it? How is it cultivated and harvested? Is it harmful or harmless? If good for food or adornment, how is it prepared for these uses? Indeed the things that relate to it are almost of infinite variety. But I am told that to answer all these questions requires a botanist and an expert gardener. Admit it. Any one of us may learn and be able to answer many of them, and the preparing of ourselves to do so enlarges our how to get and eat its food, but to man, the highest of all animals, is given the power of investigating and knowing the why and wherefore of everything about him. He alone may know the "whys" and "wherefores" concerning every living thing and everything that grows, and, having acquired the knowledge, what a pleasure it is to impart it to our children! And it is wonderful how many puzzling questions they can ask us, how eager they are to learn and how much they do scope of view and makes life worth living. The lowest animal knows learn. My grandson, from colored pictures and what I told him, learned to identify most of the common birds that visited our lawn in the country, when he was so young he could hardly speak plainly. This aptness of very young children to learn is why I would have children's gardens.

And how I would have these gardens is what I am to say in conclusion. Of these gardens, I would have two kinds: (1) A family children's garden, and (2) A school children's garden. I would have the parents provide for themselves and their children some of the many good books that are to be had upon nature study, and especially upon plant life and gardening. A few will do, but the more the better. Do not understand that I would have our children become bookworms and botanists. Not by any means. On the contrary, I would have them to see, hear, study and know the things in the world about them. Books are to be used incidentally as aids, but the great book of outdoor nature should be the one most studied. There is an infinite and continuous pleasure in being able to intelligently see and hear things. I pity the man or woman that does not in some measure do so, and books will help to do it.

As I write this paper, a mother hen upon the lawn leads her brood over it, showing them where they can get the best supply of food. Just so, I would have parents lead their children into the mysteries of the farm and garden and of plant life. The garden should be a family affair, instead of a back-breaking job for the wife and mother. The father must and ought to take the lead in its conduct, and that he may successfully do so I would have him to make a special study of the common garden plants and how to grow them. To the wife and mother I would assign the work of supervising the adornment of the garden with flowers; I would have her make it a thing of beauty. The garden and hotbeds for growing plants ought to be well prepared and kept so from year to year. In the garden I would allot a portion to each child, and this should be his or hers in every sense of the word. The love of proprietorship is an inherent part of our natures. We do not have to wait until mature years for it to assert itself. As I have said, it is inherent in us, and asserts itself in our earliest childhood, and

I would encourage the development of this in every manner possible. To this end I would let each child have the full control and ownership of the plot allotted to it and of what was grown upon it. When my brother and I were boys, father allotted to us four acres of land for wheat, and he gave us Golden Chaff seed with which to sow it. We were to do all the work in putting it in and harvesting it, and were to have what we could raise as our own. He showed us how to do the work, and I assure you it was well done. No other wheat in the neighborhood got better work and attention than did that four acres, and we were well rewarded for what we did, for we had more bushels to the acre than anyone else in the neighborhood. Golden Chaff was then a new wheat in the neighborhood, and our success with it made a great demand for it, and consequently we got the top of the market from our neighbors for our crop for seed wheat. The money obtained for it was ours, and how proud we were of our success and of the fact that we had money that we had earned. Father advised us how to judiciously invest it, and the outcome of it was that when I left the farm I had enough money with which to commence and partially prosecute a course in college. Somewhere, I have seen the picture of a boy and his garden plot where, during the last year, he with his hoe cultivated and produced eighty dollars worth of potatoes. This is the manner of gardening which I am contending for, and well will it be with us when we come to recognize that our children are not to be treated as beasts of burden but are to be taken into our full confidence and companionship and that they are to have a proprietary interest in what they produce.

In addition to this, I would have especial attention given to the directing of the minds of our children to a knowledge of the common things about our homes, and especially those things upon which they are expending their labor in their garden operations. I can not think of a pleasanter and more profitable way for a farmer's family to spend a winter's evening than looking up the life history of some tree, shrub, vine, plant, bird, or insect common about their home. There is a real fascination in such study, and when it is once entered upon there is no limit to its pursuit. It is appalling when one reflects and realizes that there are thousands of farmers and their families who spend their entire lives without being able to give an intelligent account of the life history of the most common things about them. The great open book of nature is a perfect blank to them. They are born, they work, rest, eat, sleep and die, and that is all of what life has been to them. The farmer's stock does as much. A most pitiful failure is a life thus spent by a man, the highest of all creatures.

I have said that I would have the wife and mother give attention to the adornment of the garden. Among the pleasant memories of my life is that of our garden, in which mother cultivated all of the old-time flowers, and she could and did make them grow. That garden was a thing of beauty never to be forgotten. Not only was this her reward, for every one of her children grew to love the flowers and the beautiful. Not only should attention be given to the beautifying of our gardens, but also to the unsightly places about our houses. I have brought with me some photographs showing what can be done with these unsightly places; also one showing a children's garden with its allotments.

Of late years I have become much interested in the growing of perennial plants. About us we have such an abundant variety of them that are so beautiful and satisfactory. All that is necessary is to prepare a place for them and plant them in our gardens. In doing this the children will become much interested, and will rapidly get a knowledge of the "common things" about us. In flower gardening there is much incentive for work, and much information and pleasure is to be derived from it. Why these flowers? Why their various shapes and colors? What of their various parts? How are they pollenized? How is their fruit distributed? These and many other questions can be brought to the attention of the children in their cultivation. A very beautiful and instructive book by Nettie Blanchan was published in 1901, entitled "Nature's Garden," the scheme of which is to show how the wild flowers are pollenized. From the preface of the book I make the following quotation:

"Is it enough to know merely the name of the flower you meet in the meadow? The blossom has an inner meaning, hopes and fears that inspire its brief existence, a scheme of salvation for its species in the struggle for survival that it has slowly perfected with some insect's help through the ages. It is not a passive thing to be admired by human eyes, nor does it waste its sweetness on the desert air. It is a sentient being, impelled to act intelligently through the same strong desires that animate us, and endowed with certain powers differing only in degree, but not in kind, from those of the animal creation. Desire ever creates form. Do you doubt it? Then study the mechanism of one of our common orchids or milkweeds that are adjusted with such marvelous delicacy to the length of a bee's tongue or of a butterfly's leg; learn why so many flowers have sticky calices or protective hairs; why the skunk cabbage, purple trillium, and carrion flower emit a fetid odor, while other flowers, especially the white or pale yellow night bloomers, charm with their delicious breath; see if you can not discover why the immigrant daisy already whitens our fields with descendants as numerous as the sands of the seashore, whereas you may tramp a whole day without finding a single native ladies' slipper. What of the sundew that not only catches insects but secretes gastric juice to digest them? What of the bladderwort, in whose inflated traps tiny crustaceans are imprisoned, or the pitcher-plant, that makes soup of its guests? Why are gnats and flies seen about certain flowers, bees, butterflies, moths or hummingbirds about others, each visitor choosing the restaurant most to his liking? With what infinite pains the wants of each guest are catered to! How relentlessly are pilferers punished! The endless devices of the more ambitious flowers to save their species from degeneracy by close inbreeding through fertilization with their own pollen, alone prove the operation of the mind through them. How plants travel, how they send seeds abroad in the world to found new colonies, might be studied with profit by Anglo-Saxon expansionists. Do vice and virtue exist side by side in the vegetable world also? Yes, and every sinner is branded as surely as was Cain. The dodder, Indian pipe, broom-rape, and beech drops wear the flower equivalent of the striped suit and the shaved head. Although claiming most respectable and exalted kinsfolk, they are degenerates not far above the fungi. In short, this is a universe that we live in; and all that share the One Life are one in essence, for natural law is spiritual law. 'Through Nature to God,' flowers show a way to the scientist lacking faith."

In 1897 I prepared a paper for the Indiana Audubon Society, which was published in the Inland Educator, in which I advocated a change in the system and conduct of our country schools. The paper was well received. In it, in brief, I said that we have too many schools and that necessarily the cost of maintaining them makes of them inferior schools. To remedy this I advocated the abolishing of many of these schools, and the establishing of a high school in each township. For each of the high schools, I would have from twenty to forty acres of land, one-half of which should be devoted to forestry and the birds, and one-half to agriculture and gardening. The paper was in line with the thought that now is being successfully carried into execution in many of the European countries. That thought is based upon the other that it is desirable to raise the standard of these studies and thereby make country life attractive to our children, and thus prevent them from leaving our farms and flocking to the towns and cities. By pursuing this course the salaries and the standard of our teachers could be raised, and we would have many persons who would make the profession of teaching a life work instead of a makeshift to get into some other avenue of life, and our children would become attached to country-life. How the departments of agriculture and gardening should be conducted in such schools would require more time and space than can be allotted to this paper. Suffice it to say that I would have them conducted closely along the lines that I have outlined for home gardening. In either case, I would not have too much time and attention given to the study of books; on the contrary, I would, as I have already said, give much attention to the study of the open outdoor book of nature.

In conclusion, it is gratifying to know that at last the matter of "school gardening" is attracting attention in the United States and is being taught in at least one of its cities. In the city of Hartford, Conn., the subject has been taken up by the school authorities and placed under the supervision of Prof. H. D. Hemenway, who has met with great success in interesting the children of that city in the work. Prof. Hemenway has given the subject much thought and study and is now its leading authority in the United States. "How to Make School Gardens," a book written by him has just been published by Doubleday, Page & Co., of New York. I have not seen the book, but in a review of it in yesterday's Journal it was said that "it is intended as an aid to those who wish to engage in the work of cultivating a small garden in connection with school work and as a stimulant to enlist the interest of children in the instructive features of right gardening. It tells how to make a school garden, how to fertilize the land, how to plant seed, pot plants, take cuttings, how to graft and bud and many other things calculated to interest intelligent children."

President Stevens: This is a topic on which we are all much interested, and no doubt many who are here can add a moment to the paper. Perhaps most of you have had some practical experience in interesting children in garden work. If we have not taken up this matter we should do so, but I think some of us here have done this and from such ones we would like to have a word. Let us take up this matter and not allow the time to drag. Mr. Woollen is ready to answer any questions.

Margaret Wood: I would like to know how we can interest the men so that we will not have so much to do in the garden.

Mr. Kingsbury: One way to interest boys in the cultivation of the garden is to put the hoe out of sight. Instead of putting it ahead put it out of sight and say nothing about it. We hear of the "man with the hoe," and the boy has the old idea that to cultivate a garden is hard work because it is done with the hoe. I have found that with a common hand hoe is not the way to cultivate a garden anyway. We have a little arrangement called the Fire Fly hoe or plow. It is a plow on a small scale, but it does the work of about five men in the way of cultivating a garden. It is pushed in front of you, and if the ground is in proper tilth to be properly broken, and is suitable ground for a garden, it is very easy to push this along. You can put the dirt just where you want it more accurately than with a hoe.

Mr. Swain: I would like to ask if the women can push this Fire Fly?

Mr. Kingsbury: No, we Indiana Farmer folks do not believe in letting women into the garden until all the materials are ready to be put on the table. Although the article referred to purports to have been taken from the Indiana Farmer I think the lady who wrote it must have lived in the southern part of the State, not far from where Mr. Stevens lives.

Mrs. Stevens: No, sir; she didn't live south of Indianapolis.

Mr. Kingsbury: Are you the author yourself? I don't believe the appearance of the ladies before me show that any of them are guilty of the conduct described in the article read. They don't cultivate the garden or milk the cows. They don't look like that class, and if we are ever guilty of such conduct as that we will be sorry for it. Going back to the point I was making, I think if you will get one of these little Fire Fly plows or hoes you will have no trouble in having good gardens. It is a pleasure to run this hoe and is not an irksome task. Take the hard work idea away from the boy and he will be willing enough to do it.

Mr. Little: I know a man who compelled his boy to work in the garden to punish him for misbehavior. The boy said: "Father, if I had a garden I would sow it in wild oats."

Mr. Snodgrass: We call our place the garden place or spot of the world. Mr. Chairman, this reminds me a great deal of Josh Billings' comments on the way a child should be raised. He said: "Raise a child up in the way he should go by going that way yourself once in a while." This is very true. If you are going to raise a child up to work in the garden you must work in it yourself a little. We must not expect the housewife to leave her work and attend to it. Her work is in the house. Her work is taking care of the family. Her duty is a moral and religious one to the family. It is not to go out and scorch in the hot, boiling sun, but the father, with his boys and girls that he wants to educate and learn to work, should lead the way. This would be my plan for conducting the children's gardens.

President Stevens: I would like to hear from Mr. Johnson, who is connected with the School for the Feeble-Minded, as to their gardens.

Mr. Johnson: My experience in connection with the School for the Feeble-Minded is almost that of an onlooker, although I know a great deal of what is going on there. I am not actively connected with this school, but I wish to say that probably the greater part of our efforts with the feeble-minded children to help them and better their conditions is by the use of the garden. We have in connection with that institution a very large garden, and not only the boys but also the girls work in it. Of course our children, some of them, are old—as old as thirty years, but they are still children in most ways and work with the children in the garden. This education is probably the best education they could get.

Sylvester Johnson: Mr. Chairman, we have a lady in the audience who has had some experience along the line we are discussing now, and I presume the audience would be glad to hear from her. I speak of Mrs. Stevens.

Mrs. Stevens: I don't think this is just exactly fair in Mr. Johnson. I think I made myself a little famous or infamous in saying that the right place to begin to beautify was in the back yard, and I have since that time been called the "back yard woman," and in order to live up to the reputation that I have gained I have confined my work and my energies to the back yard, and from the flower beds in the back yard we have extended to flower gardens, and I don't believe it is egotism or out of the ordinary when I say that we have one of the most beautiful back yards and flower gardens to be found in the State, and I have hunted myself for a better. I don't like Mr. Kingsbury's push cart at all, and Mr. Stevens' feet are too large to get into the garden at all times, and I have done most of the work myself. It surprises me to hear anyone speak of neglecting a farm garden. At our place we hurry through with the work in the garden that we may go to the field. I think we have the first year to neglect the garden. We would starve without it. We live out of it. We are near enough to town to have visitors from the city, and we need it, but I want to raise a pretty garden as well as a good one. I believe it is a pretty good thing to get the reputation of having a good garden, because you will live up to it, and it is a very economical fad.

Sylvester Johnson: Along the line of teaching children to love gardens, etc., there is great danger that you require too much work of them. I will illustrate my point. Children don't like to work. In my younger days I had a boy whom I wanted to become a horticulturist. I used to have him help me in the garden, and also work by himself. I said to him one morning: "There are the potatoes which I want you to hoe, and hoe well, and get it done before I come back to dinner." The boy said: "Pa, if ever I have a garden I will have it paved all over with bricks." There is danger of doing the opposite from what you intend in trying to teach a child to love a garden.

Mr. Milhous: If I want to make fire fly with my boys I will get them Kingsbury's Fire Fly, and I guess the fire will fly. I educated my boys from the time they were very small to love a garden. At the same time I have them plant everything in long rows—long furrows. Have a bountiful supply of everything, but if you haven't enough of one thing to plant a row finish it out with something else, and do the work with horse power instead of man power. I did get one Fire Fly, and I wished it was back in the market before I used it a day. I was glad when it was ready for the dump, and if possible I think the boys were more glad than I was. Children's Gardens is the subject of the afternoon. I would not know how to discuss this point from this standpoint, for at our house the garden is for all of us. One of my neighbors said: "I get so mad every few days I can hardly stay at home because my wife will go into the garden and plant something. I don't allow her to plant anything without my observation and oversight." I said: "Well, my wife has a perfect right in the garden just when she pleases and to plant anything that she wants, even if she has to plant it herself." I think a garden should be a garden for the whole family, and above all things have a bountiful supply of everything that is grown in the garden.

President Stevens: Perhaps we have taken as much time on this subject as we can spare. A great many of us are so situated that we can not interest the children along the line of market gardening, and if this is true we should interest the children in some other way. We have found that we can interest children by assigning portions of the garden to their cultivation and pay them for their services. This is very successful. Give them a bed of onions and peas and buy them of them, the same as if they were on market. You will be surprised at the interest they will take if they see a nickel or a dime ahead.

The next subject is "Home Making," by W. L. Elgin Fox, of Richmond. It seems that Mr. Fox is not present. Has anyone a thought along this line of home making, to give to this Society?

Mrs. Stevens: Might I ask if there is any possibility of having this paper from Mr. Fox? If there is, let's not discuss it until we hear this paper. He may be here tomorrow sometime, or perhaps this evening.

President Stevens: If this is the pleasure of the Society we will postpone this subject until some future time. The next topic is, "Five of the Most Promising Varieties of Apples," by Mr. Hobbs.

Mr. Hobbs: Mr. President, Ladies and Gentlemen—We are somewhat handicapped in presenting this paper or subject for the want of a good definition. We will find it very difficult to determine just what a new variety is. A variety may be as old as the hills in some places and perfectly new to us, and vice versa. It may be old to some people in the world and new to us—new in every sense. Varieties may not have been tested as to soil and climate, so I am at a loss to give a good definition, more than to say that it is a variety that we are not acquainted with. I think this will afford a practical working basis for discussing new varieties. Then there is another trouble, that is the trouble of local adaptability. Most varieties of fruits have their peculiarities as to soil, climate, and as to treatment, so we have this to contend with in recommending new varieties, and what I have to say along this line will be simply suggestive and not at all authoritative. You can be your own authority as to what you plant, but I will suggest five varieties that I think are worth, as far as I have observed, a pretty general cultivation.

The Longfield is one of the varieties. This apple was introduced from Russia several years ago. I find from several years' trial that it is perfectly hardy; it is an annual bearer; to some extent it bears very full every other year; it comes into fruiting quite early and ripens at this time or the last of July and up to the middle of August, and is a most excellent cooker. It is medium to small in size, of a whitish color, with a blush on the sunny side when fully exposed to the sun; is quite tender and cooks as soon as heated through. It is a very excellent apple. I have a few small specimens in my pocket that I gathered this morning. They are smaller than usual this year on account of this being the off year; but they are seldom smaller than this sample, but if you will thin the fruit they will be much larger. When fully ripe the apple is a yellowish white.

Another good apple is the Wolf River. This has been raised in different parts of the State, and as far as I know is giving good satisfaction; at least I have never heard any very serious objection to it; none have developed thus far to my knowledge. This apple originated on Wolf River in Wisconsin, some years ago. It is perfectly hardy both as to cold and to heat and dry summers. It is a reasonably early bearer, and has an extremely highly colored appearance. The flesh is rather coarse, and is not rich, but it is an excellent cooker, and is a most tempting apple in appearance on account of its size and beautiful color. I am inclined to think that it will be extensively raised, from the present indications. I have with me a specimen of the Wolf River. You can't tell very much about this specimen as this is not its season; it is a later apple. Those of you who attend the State Fair will remember of seeing a large collection of them presented by Mr. Zion, who I see is in the room, and perhaps he can say a good word for the Wolf River.

The next apple I find is not well known in the central or north, but is well known in the South. In recent years this apple is coming to the front. The apple to which I refer is known as the Indian. This apple is rather large—about the size of a Ben Davis as a rule. It is not quite as highly colored, but is striped very much the same, and is somewhat like it in shape. It is conical. It bears more heavily every other year. I find that the trees in our part of the country are pretty well filled this year, in fact they are the only variety in our part of the country that has anything like a full crop this year. This variety originated on the old Indian Camping Grounds on Lost River in Orange County, about forty years ago. I was talking with a gentleman from

Orleans the other day about this apple, and he tells me that it is the leading apple on his place and is full of first-class fruit this year. The apple is better than the Ben Davis, is a better apple raw, and is better cooked. I think it is an apple that will be pretty generally planted. It is a winter apple, and is a very fair keeper.

Another apple is the Gano, which originated in Missouri some years ago, and for several years I was inclined to think that it was no improvement over the Ben Davis, but last year we had a fair crop of them and I put it to the test, and found that it was very much superior. The trees are identical; I can not tell the two apart. So far as I can see the trees are just alike in every way. It matures a little earlier and will not keep quite as well. Probably the skin is finer. It cooks up loose and tender. It is not the Black Ben Davis. It was thought for some time that it was, but it has been proved beyond any question that it is not. This apple originated in Arkansas.

I wish to speak of the Black Ben Davis in this connection. It has not fruited to any considerable extent in this State, yet, where it has fruited it has attracted attention and seems to be an apple of merit. I hesitate to recommend at all anything that has not been pretty well tested, because we fall down on new varieties occasionally, and I do not care to lead anyone astray in recommending new varieties. The Black Ben Davis is rather more highly colored than is the original Ben Davis, and the fruit is a little larger. It fruits a little earlier than the Ben Davis, and the fruit is supposed to be better in quality. That I have not tested.

I believe this covers my list of five varieties. I expect all of you have varieties that you would like to recommend, and if so now is your opportunity, for I have said my piece.

President Stevens: Has anyone else a better list than Mr. Hobbs has presented to us? We would like to hear from our Wolf River man to see what he thinks of the Wolf River at this time.

Mr. Zion: I feel as if I should say something concerning this apple. I planted six or seven trees in my orchard. The wood is almost as hard as orange wood. The trees are very full. The trouble is it bears too heavily, but this is no criticism of the apple. I suppose half of the seven that I planted are disfigured from breaking on account of overloading. The fruit should be thinned, but you seldom find people that will do this. This is the trouble with people in Indiana. I also like the Longfield. It is a lovely cooker, and makes most excellent cider. I made several gallons of cider last year; in fact I thought that was about all the apple was fit for, but I found the trouble was that they were overloaded. As I said in the beginning a number of my trees are broken down and disfigured because I neglected to thin them. It is hard to get people to spray fruit, and you need not expect to get them to commence to thin it for some time to come. I would not advise anyone to plant four or five hundred or a thousand Wolf River trees; thirty or forty trees will be enough. The apples brought me $1.00 a bushel. It is a question with me as to whether or not these apples can be kept in cold storage. I find that most people are ignorant on this subject, but I learned something last year that makes me value my orchard two or three times what I valued it last year. When getting my apples ready for the State Fair I just put them in cold storage and found that they kept all right. There was a little Snow apple that you have to gather inside of three days after it is ripe or it will rot, and that little apple came out in excellent condition, and with the Snow apple came my Wolf River apple, but there was some loss on the Wolf River, but I thought that was because it was not gathered at exactly the right time. I think if it was gathered at the right time it will keep up until Christmas in a splendid condition. We began selling the Wolf River in July last year. We kept thinning the apples off of the trees until the last of the season, when we put them in cold storage. I had about ten or fifteen barrels of these, and the last four barrels of them I sold at $7.00 per barrel, the highest price received for apples at that season of the year. This is certainly a favorite apple in our part of the country. This year I have very few Wolf River apples. The trees could not live to bear every year like they bore last year. These trees require moisture. You will suffer from rot on the Wolf River apple if there is a dry season, but last year was a perfect season and they showed what they could do.

I think the Gideon apple is one of the finest that grows today. It is a beautiful apple, and grows on a beautiful tree, has lovely foliage with a large leaf, and they bear always, it seems. You will find this one of the finest looking apples that grows. People that want to can apples should raise the Gideon. When ripe there is a beautiful blush on the sunny side of it. This is an apple that I would advise all to try.

Mr. Little: I would like to ask you what is the character of your soil, Mr. Zion?

Mr. Zion: We have black soil merging to clay subsoil. I would prefer good corn ground for Ben Davis apples, but black ground for Wolf River apples.

Mr. Little: I have five Wolf River apples in my orchard, and the trees wont hold on till ripe. I have been able to win five prizes with Wolf River apples; but they will fall off.

Mr. Zion: I overlooked one point. You can hardly separate it from the tree without breaking a limb off. This apple will not drop until ripe.

Mr. Burton: I live near the origin of the Indian apple. It is not generally cultivated in our country. I will relate this incident in regard to it. One day a farmer asked me to go and look at some pigs, as he wanted to sell some and I wanted to buy some. We went out to the pig-pens back of the house and there I saw the pig troughs full of big red apples. I said to the man: "What in the world have you got those apples in the pig trough for?" He said, "Oh, they are just Indians." That was the opinion of the man in regard to the Indian apple, and the pigs apparently coincided with him as they had not bothered them. For winter apples our popular varieties are the Rome Beauty, the Wine Sap and the Ben Davis. We at our house do grow an apple that is not generally grown. I have no doubt whatever that this is the best of all summer apples. Mr. Hobbs will second what I say about it I am sure. This apple is the Benoni. It stands probably as the apple with the fewest faults of any known. I know of only one fault that it has and that is that it is probably a little under size. From what I have heard of the Longfield it is probably as large as it with none of its other faults, and comes at nearly the same season, probably a few days sooner. I do not care to mention varieties further unless you care to ask me about them.

Mr. Hobbs: I would like to corroborate what has been said about the Benoni. This (showing apple) is the average size of the apple. It sometimes gets a great deal larger, but this is the average size; it runs a great deal like that. It takes on quite a bit of coloring, and when fully ripe the white ground is changed to yellow, and then you have an apple that is fit for a king. I know of nothing finer in quality than Benoni out of hand or cooked. It bears heavily every other year, though not so full every year. It makes a handsome tree in the yard. If you are only going to plant one summer apple, plant the Benoni. I am sure that I am safe on this point; I may be wild on some others but I know I am right on this.

Now about the Northwestern Greening. It is not a winter apple here. It is a winter apple in the North, but here it is a fall apple and ripens a little later than the Gideon, but I think it is a better apple than the Gideon. It is a little larger and I think probably a little better in quality.

Mr. Burton: I wish to say another word here in regard to the keeping qualities of the Benoni. While it is a summer apple it is a remarkable keeper. We have kept them until after Christmas. A few days ago we sent to Mr. Keach a box of Benonis that we expect, but do not know, will be in good condition for the World's Fair next May. This apple is certainly an excellent keeper.

Prof. Troop: The Gideon that has been mentioned is the Gideon that was originated by Peter M. Gideon, the originator of the Wealthy. We have the Gideon growing in our orchard, and heretofore it has not been as prolific as the Wealthy, nowheres near, but this year it is showing up in good shape. There are very few wormy apples on the trees. I think a great deal of the Gideon as a fall apple. We might say that all of the winter apples that originate in Russia and the Northwest are not winter apples here. The Russian apples are as a rule summer or fall apples here.

Mr. Kingsbury: I am a little surprised that my friend Johnson hasn't a word to say about his friend the Early June, which I think he regards as a good summer apple. I should like to hear a word on that apple, for it is a really good apple.

Sylvester Johnson: I was thinking about something else and not so much interested in this discussion. I will say that I like the Benoni. The Early June is the best apple I have ever eaten. This is saying a great deal. It has a very fine flavor.

Mr. J. W. Apple: Is it grape flavored?

Mr. Johnson: I guess some of you think I am crazy on grapes and the grape question. I may also be crazy on the apple question, but I don't think I make a mistake when I recommend the Early June.

Mr. Hobbs: The Early June is so much like the Benoni that it can't help being a good apple.

Mr. Johnson: It doesn't bear a good crop every year, but bears heavily every other year. This year it is overloaded.

Mr. Little: I want to ask a question about the Gideon apple. Is it a Russian apple?

Mr. Teas: No, it is not a Russian apple.

Mr. Little: Did Gideon originate it?

Mr. Teas: Yes, sir. I believe Mr. Zion said that he noticed in the wet season the apples did not rot so badly on his trees. The question I want to ask is whether anyone has tried throwing wet straw under the trees to keep the ground moist to see whether it will make any difference in your apples rotting and falling. I think possibly this would help.

Mr. Zion: I have been reading in the New York papers that some of the people there have the idea that we must cultivate the ground in order to have moisture. We can not keep trees bearing unless we have moisture there by some means. We must cultivate trees as well as corn. It is pretty generally believed in New York that the trees must be cultivated. I think when an orchard is planted it should be cultivated for five or six years in order to develop strong wood, and after this is done commence looking for the crop. The moment you stop rapid wood growth then your crop begins. When you plant a tree that begins bearing young, and which does not have a strong body, in four or five years it is a dead tree. I am going to sow my orchard down in clover or rye, three pecks to the acre. I will put the pigs in there next spring and will keep it eaten down pretty well. Before it begins to mature I will have it mowed down and throw it back under the trees. I will plant rye next fall, and next spring clover. I am inclined to believe that there is a great deal in cultivating your trees. It protects the trees from the terribly cold winters and the dry summers.

Mr. Teas: I am satisfied that if the land under the trees is kept thoroughly fine it answers the same purpose as mulch, and it is very much cheaper, and you do not get the evil effect from it that you often get from vegetation under the trees. I think it answers every purpose without the evils of the mulch. This makes harbors for field mice which will destroy the trees when you are not looking for it. I think there are several disadvantages in rotting vegetation under the trees.

Mr. Smith: I should like to ask a question that is closely allied to this subject. It has been stated here that many good varieties overload, overbear. The question that I want to ask is, if anyone here has had any experience in heading back the trees to prevent their overbearing, the same as in peach trees. I know that in plums it prevents the breaking down of the limbs and the disfigurement of the trees.

Mr. Hobbs: The apple and the plum fruit so differently that you can hardly compare them. You see the principle will not apply the same to both trees because they fruit so differently. The Quince fruits in the same way. I think this is not practical unless a considerable amount of wood is removed. When you remove a considerable amount of wood you remove a considerable amount of fruit bud.

Prof. Troop: The Grimes Golden, for instance, bears fruit all through the trees, while some varieties have the fruit on the ends of the limbs. Probably these trees could be treated in this way, but the different varieties of apples differ in their way of carrying fruit, and so every variety will have to be treated differently.

President Stevens: This is probably all the time that we can devote to this subject, so we will have a paper by Mr. Teas on "The Catalpa."

THE CATALPA AND OTHER TREES FOR TIMBER.

E. Y. TEAS, CENTERVILLE, IND.

The increasing scarcity of timber for farm and other uses, renders it important that farmers and others give more attention to the production of timber than has been done in the past.

In my opinion the most useful varieties of trees to plant in this State are catalpa speciosa, osage orange and black or yellow locust. Of these, catalpa will attain a useful size more quickly than either of the others, though all are rapid growers, in general free from disease, easily and quickly grown from seed, and readily transplanted.

The discovery of catalpa speciosa was a little peculiar. The common catalpa bignonoides was introduced into Indiana from the eastern States early in 1800, and was considerably planted, especially in the eastern and southern portions of the State as an ornamental shade tree. In the summer of 1852 Dr. John A. Warder, who became so distinguished in later life in horticultural matters, was then a practicing physician in Cincinnati. He attended a medical convention in Dayton and noticed a few catalpa trees on one street block there in full bloom, while other catalpa trees in Dayton were not near ready to bloom. He then remembered that the catalpas in Cincinnati were not then in bloom, although the season in the latter city is generally about a week in advance of Dayton. Upon closer examination the doctor found the bloom of these few trees much larger than the ordinary, and of a different color, while the growth and habit of tree was more upright and vigorous. The doctor published an account of his "find" at Dayton in his "Western Horticultural Review," in August, 1853.

My brother John C. and I grew the first catalpa speciosa seedlings in 1854 ever grown commercially in America. Of these seedlings we sent 1,000 to Suel Foster, a nurseryman of Muscatine, Iowa, and he discovered the superior hardiness of this tree. The bignonoides being entirely too tender to live through the winters of central Iowa, while speciosa has lived and bloomed in central Minnesota. In raising catalpas from seed every care should be used to obtain seed true to name, as C. Bignonoides is worse than valueless. The seed may be distinguished in a general way by the hairy ends of speciosa being spread out fan-shaped, while in bignonoides the ends are drawn to points like a waxed mustache. The older trees are distinguished by the outer bark, in bignonoides scaling off something like a sycamore, while the rough bark of speciosa is thick and ridged almost exactly like the bark of a black walnut. The seedpods of speciosa are generally much longer and thicker than bignonoides, but this difference is not as uniform as the difference in the bark of the trees, and in the seeds.

C. speciosa is of upright growth, sometimes attaining 100 feet in height and three to four feet in diameter at the stump. Trees eight to ten inches in diameter will make two to three lengths of fence posts. In a grove that I furnished the trees for, 4,000 trees planted on a rather poor hillside fifteen years ago are now twelve to fourteen inches in diameter at the stump. These trees were planted eight feet apart each way, and are now being thinned from time to time for posts, which I am told sell at 50 cents each. One of the largest greenhouse establishments in America in building a greenhouse 400 feet long last summer used catalpa posts to support the structure, thinking that the most durable material available.

Catalpa is easily grown from seed. Plant the seed about the last half of May until first of June, in fine light soil that will not crust or bake, covering about half an inch deep. Seed will start nearly as quickly as corn. The seedlings are about as delicate as to frost as young tomato plants, hence the importance of not planting too early. I plant in rows two feet apart, aiming to have the seedlings about an inch apart (they may be two or three abreast by scattering the seed in the furrow). Plants should attain one and a half to two and a half feet the first season, and are then ready for the timber plantation the next spring. If I were planting a grove for posts on level farm land I would plant catalpa and osage alternately five or six feet apart, say start with osage first and catalpa next. Second row, catalpa first and osage second. This would make each kind ten or twelve feet apart, expecting the trees all to grow well until the catalpas were large enough for posts in about ten years, then cut them out and the osage would have plenty of room. This would give about 1,100 trees per acre. The 500 catalpas would be worth $250 in ten years or $25 per half-acre per year for ten years. The osage standing ten years longer would be worth at least $1 per tree, amounting to $500 for use of the half acre for twenty years, making $25 per acre per year, while the land is improved by the rest from farm crops, and the rotting of the leaves. In planting a hillside or land inclined to wash I would advise osage and black locust alternately. There are acres on many farms where poor, rough or overflowed land now of little value may be turned to good account by planting to timber adapted to the locality. Many farmers might also plant trees along the roadside and on boundaries, setting the trees about thirty feet apart, which in a few years would do to attach wire fence to and thus become living posts. Among other extensive plantations of catalpa that of the Kansas City, Fort Scott & Gulf Railroad, near Farmington, Missouri, deserves special mention. In this plantation nearly 200,000 trees were planted, mostly catalpa. After a few years' growth and carefully comparing growths and noting results, the company say the catalpa has certainly proved to be the strongest grower and most tenacious of life, standing the dry weather better than other varieties, and at present rate of growth will attain useful size years before other varieties are of sufficient size to be of any utility. Their trees in this plantation have now attained such size that the catalpas are being cut for railroad ties. and the company find they have an abundant supply for their road for many years to come.

It is well known that catalpa speciosa timber makes the best railroad ties of any timber found in the United States, unless osage orange should be found superior. I believe this has not yet been thoroughly tried.

Messrs. Binckley, near Dayton, Ohio, planted a small grove of catalpa of less than an acre, setting the trees 4x5 feet, and left them to do their own pruning. In twelve years the trees stood thirty feet high and over, and four to eight inches in diameter. A low estimate showed that the trees would make posts worth $500, besides the smaller stuff for stakes, poles, fuel, etc. That is over $40 per year per acre for the time the trees were growing, which is a pretty good profit on farm land where no cultivation is required after the first year. I would also recommend the osage orange as a valuable timber tree. This tree, found native nowhere in the wide world except along the Red River, in Texas and Indian Territory, grows well in nearly all parts of Indiana. It is always healthy, hardy, vigorous and free from disease or insect pests, grows easily from seed, and transplants readily. In its native locality it attains the stature of a medium sized tree. The timber is highly prized for building wagons, the wood being very strong, elastic and durable. It is claimed that wagon wheels made from this wood will not shrink to loosen the tire until the latter is worn out. The Indians of the southwest consider bows made from osage wood more elastic and strong than from any other. Comparatively few farmers who have overgrown hedge rows of Osage where they once intended to have hedges realize what a valuable plantation these unsightly thickets may become by a little trimming and training.

Some recommend the coffee nut or Kentucky coffee tree and honey locust as valuable timber for posts. I am convinced, from considerable observation, that neither is durable when in contact with the soil. The coffee nuts are very difficult to collect, very difficult to get to grow, not easily transplanted, and of doubtful value when obtained. There are thousands of wet waste places in our State where Carolina poplar and white willow can be profitably grown for wood pulp, firewood and charcoal, white willow producing the best charcoal for powder making of any known wood.

These trees, poplar and willow, grow readily from cutings, which, if planted in early spring in good soil, setting the cuttings deep, so that only about an inch of the top end reaches above the soil, often grow 6 to 10 feet high the first year. The cuttings may be planted where the grove is desired, setting them 2x4 feet, to be thinned out for poles or fuel as is found necessary. Such a grove will in a few years yield an immense amount of fuel, and later valuable timber.

Several years ago it was thought that the European larch would be a valuable timber tree to plant on the prairies of the Central West. The successful transplanting of this tree from its native home on the Alps of Switzerland to the cold bleak highlands of Scotland, where it flourished amazingly, gave great hopes that it would be equally successful in America. I made three trips to Europe, largely to investigafe this subject, and after traveling through France, Germany, England and Scotland, in each of which nationality the larch is planted largely for timber, I was greatly encouraged in the idea that the tree would do equally well here. Experience, however, proves that while the European, Scotch or Tyrolese larch, as this tree is variously called, does succeed in the high, dry land of the most elevated localities, it does not do well on the lower levels, as it is there attacked by an aphis that soon destroys the life of the tree. I have sold hundreds of thousands of larch seedlings in Illinois, Iowa, Kansas and Nebraska in years past, but do not know of a successful plantation except on very high ground. In the highlands of Scotland about Dunkeld, the Duke of Athol planted many thousands of larch trees obtained from seed grown in Switzerland, that had been planted twenty to thirty years when I saw them, on hillsides so steep I could scarcely climb them. These trees were 20 to 24 inches in diameter, tall and straight as an arrow. Oaks planted at same time as "nurse" trees were only 4 to 6 inches in diameter, of little prospective value.

Mr. Little: I am not prepared to talk on this subject, as I did not prepare myself, thinking that I would not get to attend this meeting. I do not like the coffee nut for posts. I planted a fence about forty rods long about two years ago. They are rigid and very strong but they do not have durable qualities. It is a very poor timber from a point of durability. I will tell you that I think it is all wrong for a man to come here and try to mislead his friends; we ought to give facts or nothing at all. If there is anything I want to be honest in I want to tell a man the truth when he is trying to learn. I do not like the coffee nut.

Mr. Kingsbury: It seems to me you are wasting your breath, for the coffee nut was not recommended in the paper.

Mr. Little: When I talk I try to give facts, for there are people here who live near enough to me to see what I say is true. There was a sale in our part of the county and among other things offered were some osage posts and after half of them were selected out for home use, the remainder were sold to John Hammond, and even though that was a pretty large sale there was nothing that attracted so much attention as the posts, the osage posts, and the administrator told me they brought $100. Now will you allow me to say something about the catalpa. I will say that I believe that the catalpa is a good timber, but I do believe that from a point of durability it is overrated. Why do I believe this? Because I was down in Gibson County, and Posey County, where it naturally grows, and I had been requested by Dr. Furnas to find a post that had lasted ten or twelve years, and I did not succeed, although I was there two or three weeks among the people who raised them. There were car loads of posts. Now all the stories that we have heard here about the durability of the catalpa post is all bosh. You will hear about the catalpa foot bridge at Vincennes, but I will stake all I have that the bridge is not catalpa. It is Mulberry, for I chipped a piece and brought it home with me. After Dr. Furnas had made a speech at Valley Mills and expounded on the catalpa I embarrassed him by telling what I knew. Before I began an investigation I believed the catalpa was all that it was represented to be, but after an investigation I found that it was not. I was over in a town in Ohio not long since waiting for my train and I got into conversation with the section boss, and he told me that they put in catalpas once for crossties, but they proved to be too soft and they took them out.

Mr. Teas: Brother Little is a very good fellow, but he knows but little about some things. I want him to understand that I am responsible for everything I said in that paper, and I believe that he can not prove many things that he has said. He is mistaken, that is all.

A Member: I was speaking with a professor in Franklin College about these woods. He told me that he did not think the catalpa very good for posts. I had twelve very good posts and set them out for a grape arbor. They did not last six years. They all rotted off at the top of the ground. If they will only last this long you might as well have an ash or a peach post.

Joshua Russell: I don't exactly know whether this discussion is confined to membership or not, but I have a few words that I would like to say. I listened to the paper and I enjoyed it very much. I enjoyed all that was said about the catalpa, and it was all true so far as I know. As to its durability I can't speak from personal experience. However, this is a tree that is not destroyed by stock, and there are few trees that the stock will not browse. This is a great advantage. What I say about the tree I speak from personal experience, investigation and observation. Now there is another thing about the catalpa. It will endure excessive moisture, even to long continued submerging in water. I have seen catalpa trees submerged in water so that the water was two or three feet above the top of the trees, and this was in the month of June and in a warm climate. This was caused by the overflow of the river. This continued for several weeks. They grew so much that summer that I am almost afraid to tell you the number of feet they did grow, for it was enormous and almost sounds incredible, but they grew nine feet. They grew until in December. They could be grown where nothing else of value could live. You can plant catalpas in the river valleys and the overflow will not hurt the trees, but will benefit them and they will grow the faster. I called the attention of the government to this matter as being a possible solution of reclaiming those river bottoms, especially the lower Mississippi River which has been such a tremendous cost to the government.

Mr. Shoemaker: I think that all of us did not understand the paper. It stated that there were two varieties of the catalpa, and that one was not any better than apple. The varieties are bignonoides, which is not durable, and the speciosa, which is very durable. When we are speaking of these trees we should designate what variety, for if we don't it will lead to confusion.

Mr. Jno. C. Thomas: I have so much confidence in the catalpa that I am planting them all around my farm for posts. I don't expect to live to see them ready for use, but when they are ready they will make excellent posts.

Mrs. Stevens: We made a great mistake in setting out the catalpa. Mr. Stevens never likes to acknowledge that he has made a mistake, so he just keeps quiet. We put out five or six hundred of the trees. They are planted on excellent ground, and we can't show a fair specimen today. It can't be on account of the variety, for we have both. There are so many worms on the trees that they look as if they were almost dead. Paris green will kill the worm, but it seems that in killing the first brood the second brood is not destroyed for they come back again. Possibly we do not go over them thoroughly the first time.

Mr. Little: The people down in Posey and Gibson counties told me that these trees were defoliated every year.

Mr. Teas: I have never seen anything like defoliation on these trees in my life, and I have been over this country for fifty years. It is a native of the American coast from New Jersey south to Florida, and extends west into Kentucy. Wherever it grows I have been told that the worms are troublesome, but I have never seen a worm on a tree in my life. I just wonder if Mrs. Stevens has the wrong variety. You know there are two.

Mrs. Stevens: We have both kinds, and ours are ten or twelve years old.

Mr. Hobbs: I have been recommending this tree as one to be planted around the barn lot, but I hardly know what to say now. The sheep will eat it, even though the other stock don't. We must be sure to plant the right kind. A sentence that was in the paper said that we want to be very careful not to cut off the roots of the trees as they are delicate and sensitive. I will tell you that one of these trees will lie on top of the ground for two or three months, and then will grow just as well as if it had been planted the day it was dug up. As to its durability I do not know from experience. I would recommend the osage.

Mr. Apple: I would like to know what you know about the durability of sassafras fence posts

Mr. Burton: Mr President, every child down in our region knows that the sassafras sprout lasts longer than he wants it to, but as a fence post it is not any better than black walnut; it will rot off in three of four years. When one is just in the right condition it may last for some time. I took down a windmill that had been standing on locust posts for nineteen years. Those posts were taken up and not replaced, and it was very difficult to tell which end had been in the ground. Locust certainly will last. Probably these posts were thoroughly seasoned before they went into the ground. My idea of a post is something else than wood. I think an iron post would be good, and the cement post is undergoing investigation, and if it proves a success we will have no more use for catalpa or osage posts, because we will then have an everlasting post.

Mr. Swaim: I would like to ask how they attach windmills to posts in your part of the country?

Mr. Burton: By bolts run through the post.

Mr. Swaim: Couldn't you tell by the bolthole which end had been in the ground

President Stevens: Probably the bolthole had rotted out.

A Member: I think one point has been overlooked. All of this wood should be seasoned well before using. I was told this, and I cut my posts for a fence a year before I was going to use them. When I was building my fence I found that I needed more than I had and I cut some green ones that only laid a month before being used. These green ones rotted off at the ground, while the seasoned ones are as good as they were the day they were put in.

Sylvester Johnson: I wish to offer the following resolution:

Resolved, That the President and Secretary of this Society be authorized hereby to execute and deliver to the State of Indiana a proper conveyance of the lands in Lawrence County, Indiana, constituting the experimental farm belonging to this Society, for the purpose of obtaining the benefit and use of a specific appropriation for "wire fence to be placed around the experimental farm" aforesaid, of two hundred and fifty dollars ($250), included in the appropriation act of the General Assembly of the State of Indiana, approved, March 9, 1903, which appropriation appears in the official copy of "Laws of the State of Indiana," passed at the 63d regular session of the General Assembly, begun on the 8th day of January, A. D., 1903.

President Stevens: What will you do with this resolution?

Mr. De Vilbiss: I move you that it be adopted.

The motion was seconded and carried.

Mr. Swain: At our last annual meeting we made some changes in our constitution which makes conflictions with the by-laws of the Society, and I move you that a committee on the revision of the constitution and the by-laws be appointed, to report at our next annual meeting.

President Stevens: How many on that committee?

Mr. Swain: A committee of three.

Sylvester Johnson: I second that motion.

The motion was carried.

There being no further business the meeting was adjourned to meet at 8:00 o'clock p. m.

EVENING SESSION.

Tuesday, August 4. 1903.

President Stevens: The Committee on Music has arranged for some music this evening. Mrs. Hudgell and her son will render the first selection.

(A very pretty piece was sung by Master Hudgell, after which he was encored and sang another.)

This was followed by a recitation by Miss Lulu Brown, of Summitville.

President Stevens: Is the Honorable Alfred Ellison present this evening? He is down for an address on Indiana.

Secretary Flick: I have to explain the absence of Mr. Ellison this evening. There was some confusion in regard to the dates, Mr. Ellison thinking that our meeting would be on the 14th instead of the 4th, therefore he could not be with us tonight. I have tried to secure a substitute on the same subject, but the time being limited I failed to get one.

President Stevens: I am sorry that Mr. Ellison is not able to be with us this evening, but we have with us very unexpectedly and we are very glad he has not forgotten us, and that conditions have made it convenient for him to visit us, our old friend, Mr. W. H. Ragan, whom everyone in this Society knows, and who is probably one of the oldest members. We would like to have a little talk from him this evening.

Mr. W. H. Ragan: Mr. President, Ladies and Gentlemen—I am almost as much surprised to be here as you are to see me. It has scarcely been forty-eight hours since the idea occurred to me that I wanted to see the Indiana horticulturists again. I will not say that this is the first time I have wanted to see you, because the idea is always with me, but business matters so arranged themselves so that I could settle some business at Greencastle and come here. I am with you as I have been frequently before, and I have always enjoyed my past visits and expect to continue to as long as I enjoy this world and am in a shape to enjoy myself. I am really unprepared to talk upon any particular topic. Indeed, those who know me best know that I never talk off-hand with any degree of intelligence. Sometimes I can collect my ideas to some extent at home and put them in shape so that they are presentable at least, but I never try to make an extemporaneous speech with any degree of acceptability, as this would be impossible. I met one of my friends luckily at the station this evening, and as we drove out here I looked at the fields and after having seen the world, not all of it, but quite a good deal, I thought to myself, that if there could be a little block cut out of Indiana that would include the gas fields it would beat any place in the world that I have ever seen, and is as near paradise as any place I know of. That is a compliment to Indiana. I say to you in great earnestness, and I have been in California, and most of the States north and south, that there is no place that has been given the natural resources that southern or central Indiana has. This much I will say for Indiana. Now for the subject of my work. I will say that I was called to Washington a few years ago to perform some work I was supposed to be competent to do, that would propably take a man three weeks, and I am still there, and I am in my fifth year. I have never made any application for the place, and this may be another compliment to Indiana. I did not seek the place; but the place sought me. I am doing work of a particular character that has shaped itself from the beginning. The special work was to perfect a list of fruits adapted to the United States and Canada. This is why I was called to Washington, and when that was finished something else came up, and so I am still there. Now, I am engaged in what when it is finished will be the best work of my life. I am preparing for publication a list of the varieties of apples. Of course this work will extend to other fruits later on. One can scarcely complete a work of this kind, for many of the fruits will have double or triple names, that is several names for the same thing. It is nothing uncommon to have a new wonder spring up in some part of the country and be presented to the public at first-class prices, that will afterwards prove to be an old variety, and in this particular it sometimes amounts to fraud and people are subjected to impositions. This work is to include the whole list, giving first the leading name, and all of the other names that it has. The name that comes first will be the name that is adopted by the Government, and the other names will follow in their alphabetical order. When this system is finished it will embrace at least fourteen thousand names, including synonyms of course. I now have twelve thousand written up for publication, and when I have finished, this with the prefatory and explanatory pages will go to the printers and be published for distribution. So much for this work. I am the special agent, the special Pomological agent. I am special in every particular. We have our regular clerks, but I am outside of all this. This is divided into a number of special works. One of the most important, probably, that is now being done for the interest of the fruit grower, and those who sell fruits, etc., as well as the consumer in directing him in regard to the tests that are being made in matters of cold storage, and preservation of fruits and shipping of fruits, etc., new methods of preparing them for long shipments, etc. All of these things are being tested in a very careful way and details are being published. We are learning how to save a crop when we have it, how to preserve it, and how to get it to the best market in the best shape. All of these questions are very important to those engaged in fruit growing. I don't know that I wish to say anything further than to express my sincere gratification in being able to be here. We left Washington on Sunday afternoon, and were detained on the road. This afternoon my grandson and I drove to the electric line and reached here this evening. I will say further that I have been mentioned here as one of the oldest members of the Society, and I must say that sometimes men are born earlier than others, and are still younger. I consider myself a boy yet, but really when this Society was organized I was present, and I have been present at all of the meetings but two, and those were while I was in Washington. I want to speak a word about the death of one of our charter members, a man whom I held in high esteem—Mr. Calvin Fletcher, who died recently. I have had no particulars. If I live until your meeting next fall I would like to say something in regard to his work in the Society. More recently than that even I have heard of the death of Nicholas Ohmer, of Dayton, Ohio, who was almost as near to me as one of my own people. He wrote me a letter shortly before his death saying that if he lived until the 17th of April he would be eighty years of age. I thought I would defer answering his letter until that day and then write him on his birthday, and write him a complimentary letter, but just prior to that date I saw the notice of his death in the paper. There are five charter members still living.

Sylvester Johnson: I would like to ask when you heard of the death of Mr. Ohmer?

Mr. Ragan: Probably six weeks ago, and possibly longer than that. It was in March I believe, for his birthday was in April. I don't remember that I learned the date of his death exactly.

Sylvester Johnson: This gentleman was one of my best friends, and has been for forty years or more. I feel very sad over his death.

President Stevens: The next subject on the program is "The Education and Training of Children," by Mrs. W. B. Campbell, of Anderson, Indiana.

Mr. Garretson: I met the 7:00 o'clock car for the Anderson people but none of them came or got off of the car. I noticed that they were on the program and made a trip on purpose for them, but they were not there.

Mr. Flick: Mr. Jones said he would see that they got here, and I think from the knowledge I have of this gentleman there is something wrong, some obstacle that he could not overcome or he would have had Mrs. Campbell here at least. We have a lady with us who has given this subject considerable attention and if we can prevail upon her we might have this subject discussed very intelligently and very profitably. I refer to Mrs. Stevens. I hope she will kindly do this this evening.

Mrs. Stevens: Mr. Secretary, Ladies and Gentlemen—I think it is very unfortunate for you that Mrs. Campbell is not here tonight, and perhaps just as unfortunate that I am, for there are dozens of women here who could discuss this subject very much better and who have given more thought to it than have I. I think this subject of greater importance probably than any subject that we can discuss before any meeting of fathers and mothers. It is not out of place at a horticultural meeting, and I feel that we women should do our part. The subject of the education of women is an important one to us, the daughters of the nation and the mothers of the children. It is to the children that are being educated that we have to look for the future, good or evil. They need our best thought and training. Whether we are doing this right or not is a very important question. I suppose that on this subject I would not be considered very good authority, for we have only one to train and educate, and she is just like her father and so I am not sure whether I can do very much with her or not. I will just say this, she will never make as good a man as her father is. One reason is that she could not be a man, and the other is.

she hasn't nearly so good a mother as her father had. I believe (and I know a great many will disagree with me, and some will agree), that children are born good or bad. I don't mean that a little sweet child is a bad child or a bad baby, but I do believe that it has certain traits for good or evil that tend to bias its life. I think it is possible for a mother to make a bad child out of a naturally good one, and equally possible to make a fairly good one out of a naturally bad one. The trouble is we all think our children are good. I think mine is a little bit extra. not extra good, but she suits me. I believe we indulge them too much sometimes, and I believe we are entirely too strict with them at other times. It depends, with me, on the humor I am in. There are days when I really think our daughter is unusually provoking, and I usually find that that is the day that I am unusually provoking, and there seems to be days when she is unusually good and everything goes pretty well, but I find that these are the days that I have been in my better state of mind. I don't believe we ought to train children in this haphazard manner. I believe the mothers of the future will not do this as we mothers are doing it present and past. I believe mothers are realizing the importance of training and teaching the children more than they have ever done before. I think it is right, that in all of the schools of higher education, girls should be taught how to be good mothers and how to be good wives, and thereby realize the importance of it. We are coming to realize that by the time our children are grown up and are old enough to go away to school, that we have done all that we can do for them. Whether we have been successful or not we have practically done all that we could do. Then the underlying principles governing character are established and we must leave the remainder largely to our children. I feel that I have done about all that I can, whether for good or evil, and I am now seriously studying how to remedy the faults I have allowed her to grow into when she was younger, and I am fully realizing that it would have been much easier ten years ago than now. I believe that, in educating children, we are making too much difference between the girls and the boys. There is nothing on earth as fine as a boy unless it is a girl. I don't believe one is any finer than the other. I don't think a man or woman is quite as fine as a boy or girl, and I don't believe we are to make too much difference between them. I heard a young man in the room today say that he didn't think a girl should be educated to go out and earn her living. I have decided for myself at least that girls should be given the same opportunity to earn their living that the boys are given. The boy explained that any girl that went out to earn a living was taken away from the home as a home factor, and the boys were crowded out of their jobs. In other words there are two seeking the same job. If the girls would not work the boys would get better wages and they would be in greater demand than they now are. I have not had time to think over this a great deal, but I intend to study it very carefully, as it is too important to digest too quickly. I believe the young man is wrong. I believe that our girls should be given an education that will fit them for bread winners. I don't believe that because a girl is able to go out in the world and make a living she will be apt to make any less a good wife and mother. I think she will make a better one. When she has earned a dollar she will know what it is worth. She will know that it is not the proper thing to save it up in a stingy manner and not at all the thing to waste it. I may be brought to change my mind, but I don't believe that I will. I believe that we should train our daughters to be housekeepers. I believe that every girl in Indiana and everyone in America should have quite a bit of domestic science education before she is considered a well-rounded, educated girl. A great many seem to think that this can be done at home by mothers. I don't believe it can be. I can't teach my daughter to make pies as good as her grandmother made. I think she should have a course in domestic science. There are two or three reasons for this. We mothers are so busy that we haven't the time just when the girls should be taught to make pies and bread; there is something comes up, and we don't take time to teach them rightly. There are a great many that don't know how themselves, and therefore are not fit to teach the girls to be excellent cooks and excellent housekeepers. The idea used to be prevalent and I think it is now to some extent, that the best cook is the one that has the most food on her table. I don't believe that is the best housekeeper. I don't believe that the right training for a boy or girl is to expect anyone, especially their mother, to spend all of her time working for them in order that they may have things nice. I think there is a higher mission in life for the mother than to do this. I think this is equally true of the ordinary housekeeper. I think it is well that the family should eat plain meals and wear plain clothes that the mother may read a new, good book, take a vacation, and train the child to be self-sacrificing and self-supporting, and to do this she must not make life entirely too soft for them. I don't believe there is anything we can do for our daughters that is more important than teaching them self-reliance, and that sometimes they will be the head of the house and will have everything to look after. The boys ought also to be trained in the same idea. I don't think a mother needs more consideration than a father. The father needs to be considered equal with the mother, but they should not be taught, "Now father is coming home, and we must do so and so, and this is father's big chair," etc. I think this is all right, but we must not practice this more for the father than for the mother. I teach my child in this way and I would not have her feel in any other way. I don't believe it is right to teach the members of the family that mother and sisters do not need as much consideration as any of the rest of the family. There are a great many things that might be said in this connection, and possibly I might have said more and said it more tactfully if I had known that I was to speak, and I think that the ladies here should feel it their duty to supplement what I have said.

President Stevens: This is indeed a very important subject, to all of us, young or old, and I think there are quite a number here who could say interesting things on this subject. I should like to hear from a number.

Mrs. Wood: I think a boy and girl should be taught along the same line. I think this is the sensible course to take at this day and time. I think every child should be taught to have some aim in life, not to lie idly by and live because their parents are well off. They should be taught to shift for themselves. I make that a point and I live up to it. I am like our sister here about housekeeping. It is one of the greatest honors, I think, that a girl can have, to be one of the best bread, or pie, or cake makers. Of course they must know other things, but these are some of the things that women can't get along without knowing, even if they do marry a man that is wealthy, for there often comes a time when it would be very handy for the wife to know how to cook. If she can't cook she is often left in a pretty bad shape.

President Stevens: Sometimes they may have a man they have to support. What about that?

Mrs. Wood: Yes, that is another thing. I don't agree with what the boy said; I don't agree with one word of it. If a girl can get out and make her living I believe in her doing so, and if the boy can get the place all right, but if not all right. I once knew a man from the northern part of the State who came to Indianapolis and set up a store, and almost everyone of his clerks was a lady, and he was one day asked why he had so many ladies, and he replied that he found them more honorable and honest, and that he had never known a lady defaulter. I think it is very necessary for all of us to have some aim in life, and then train up to it.

Mrs. Garretson: I am sure we ladies especially feel very thankful to Mrs. Stevens for her talk. I think the best way to train a girl is to give her considerable experience. Boys and girls should be treated alike. Suppose there are two or three girls and boys in a family, and the boys are taught some kind of employment that they can make money at. The girls are kept at home and only taught to keep house, as they have plenty of money; but suppose the father should die, and they should lose their money, as is often the case, and the boys should get married, how are the girls going to make a living. They can't do it by housekeeping at home. If they had a knowledge of anything by which they could earn a living they would feel independent—just as independent as the boys do. Often a girl marries a man that is a poor manager, and he dies, leaving her nothing, and if she knows how to do nothing she is certainly in a bad condition. I know of a case of this kind. The husband was a poor manager and had never been able to take care of the family as he should, and could not even take care of the farm. The husband died and the wife took charge and raised the family of children and paid for the farm, something that was not thought of when the husband was alive. A woman should be taught business from the very start, and learn how to take care of herself every place in life.

Mrs. Stevens: When this subject comes up it is supposed to be entirely a woman's topic; but I think the men think just as much about these things as the women, if the truth were only known, so we would like to hear from the men on this point.

Mr. Thomas: I want to tell a little anecdote. I once heard a story that ran this way. There was a young mother in a certain State who had her fourth child, and the grandmother, the mother of the mother, came and visited them a while, and she said, "I think this child of Mary's is the finest child she has, for it looks like our side of the house."

Mr. Flick: I am perfectly willing that Mrs. Stevens and the other ladies shall make our speeches tonight, but there is another side to this question of training boys and girls. Should we train the girl in business, in office business, for a position in a store, in an office, and in this way crowd the boy out? Is it wise to do these things? What about the boy? What is he to do? Play baseball and football and run with the circus? How do the girls crowd these boys out of the office? Simply from the fact that they will work cheaper. Many of them will work for less than will pay their board just to be earning money of their own. It has been said truly that there are fewer defaulters among girls than among boys. But it seems to me if they do the same work they should receive the same salary, and that they should insist upon this. If girls do better work they should have better wages. We should take into consideration this side of the question. I will say that I am not opposed to girls having a knowledge of these things at all; I believe it is all right. Now we at our house are up to date on the training of children. We haven't any at all of our own, but we have trained several children of other families. While these children were required to attend the public school, they were also trained to do all kinds of house work. We should train girls and boys along the same line as far as possible and profitable. I think there is nothing that can ennoble a girl more than to be a good housekeeper—knowing how to keep house. Some girls look upon this as a menial position—going out to work for other people. A girl should have the best training possible in literature, science and art, but at the same time should be taught to be a good homemaker and cook an excellent meal.

Mrs. Stevens: I think boys should have more wages than girls for they have the livery bills, florist bills, fruits, etc., to pay. I hardly believe that we can put the boys and the girls on the same wages so long as the girls do not hire the livery rigs, and send American Beauty roses, etc.

Mr. Milhous: I have had a little experience, having raised two sons and a daughter. Our children have quite a good deal of spunk—they get it from their mother. Our daughter always said that whenever she married she would marry a farmer, and she laid the law down pretty positively that if her husband got sick she would know how to run the business on the farm, etc. She came to the field one day when I was plowing and said, "Pa, it may be that when I get married the ground will be ready to plow and my husband will get sick, and so I want to learn how to plow." I handed her the plow handles. She did this of her own free will; she wanted to do it. All of our sons can work in the house, and can get a very nice meal. Well, if they hadn't wanted to do it they would have had to do it anyhow, because it is one of the rules of the house that the boys shall know how to work in the house and help their mother as well as for the girl to know how to help me. I want to impress this upon the parents here, that there should be no double standard between the boys and the girls, either at home or away from home. A moral sin is just as much a sin on the boy's part as it is on the girl's. A young man should be held responsible for his sin as much as a girl is held responsible. If one must walk a chalk line then the other must do likewise.

Mrs. Garretson: That is right, but a great many girls are responsible for a young man's wrong actions. I have been surprised in riding on the cars, the interurban cars, to hear rude talk and indecent slang from young girls. It has made me heartsick sometimes. I have wondered what the young men would think of that, and what a bad influence they would have. I would be glad if girls would think more about the influence they have on young men to lead them into evil.

Miss Brown: While that is true, I have always noticed that when a young lady steps just once out of the way she very seldom can get back, but with a young man it is all different. A young man may go in the best society and drink, gamble, swear, etc., and I can not see why. If the girls would look upon those things as they should I think they would have more influence for good over some of the young men of our country, and there would be less evil doing. When a young man steps out of his way the young ladies put themselves on a level with him and take him back into their society. This is very common but still very objectionable, almost accessory.

Mr. Swain: I think the young ladies are responsible for this, because when a strange young man comes to town they do not inquire as to his reputation and character, but of his looks and money, and what kind of a rig he drives, and things like this. They seem to think more of his looks and dash than of morality. They should be a little more strict on this subject, and the young men would be more careful.

Mrs. Gains: It all comes back to one thing and that is the lack of training when they are young.

Mr. Hobbs: I feel as if I am not authority on this subject. I can train trees better than children. I have concluded that the matter of training trees is very simple as compared with the training of children. I feel a great responsibility about training children, and I feel that we as parents are not enough with our children. There is too much of a distance, especially between the father and child. We are too busy making a living to pay the proper attention to our children, and we leave the children to their mother and to the neighbors, and I have found that as I have grown older and do not feel like working as hard as I used to do, I give my younger children more attention than I did the older ones. I can see a very marked effect on the child and it has a marked effect on me, and I think a beneficial effect on both of us. We are very chummy, just as I should have been with my other children; there is a closer relationship between myself and the youngest child because we have been in each other's company more. I think we as parents make this mistake in not taking more time from our business to be with our children.

Mrs. Hudgell: I agree with what the gentleman says. I am the mother of three boys; I like to hear of girls doing well, but I have made it a rule all of my life to stay with my boys even if some of the work has to go. Time isn't too precious for me to be with them. I think I am repaid for what I have done for them in their loving way to me; I would not take anything for the remembrance of my childhood days that I spent with my parents.

Mr. Stout: Twenty years ago I had this question all worked out, but since I have two children of my own I am back in the primer class.

Mr. Swain: I heard my father make almost the same remark and that was that at the age of twenty-five he felt himself competent to give advice upon the training of children, but after raising a family of seven he says, "I haven't a word to say."

Charles Swain: I will say in this connection that I was sometimes overtrained, but I think it is better to correct children than to be always finding fault with them and upbraiding them.

Mr. Milhous: I want to tell you that we have been busy at our house, and I think our neighbors will tell you that we are very busy, but we are never too busy to have some fun, and we have an abundance of fun along through life. I have tried to teach my children to look at the bright side and the funny side of life, but to always keep fun where it belongs.

Mr. Swain: There is one phase of training children that we have overlooked, and that is correcting them. If you switch a child do it right, and it will have very much more effect. I know that a very sound switching used to do me more good than anything else. If you do it, do it right. I think my father was almost perfection in that line.

President Stevens: I think this is very interesting, but we must close this subject and we will next have a selection by Miss Isadore Keer, of Summitville.

Miss Keer gave a very acceptable recitation which was well received.

After some discussion it was decided that the meeting would be called to order at 9:00 o'clock on Wednesday morning, August 5th.

The meeting was then adjourned.

MORNING SESSION.

Wednesday, August 5, 1903.

President Stevens called the meeting to order at 9:00 o'clock, and some excellent instrumental music was rendered by local talent.

President Stevens: As we need to know more about the manner of making an exhibit of fruit at St. Louis, we would like to hear from the members about it. Mr. Burton, we would like to hear what you have to say in suggestion.

Mr. Joe A. Burton: Gentlemen, when we go to St. Louis we must take the best fruit that grows. There is a great difference between a fair specimen and an inferior specimen. As I remarked last night the meeting at Paris was a small thing compared with what the meeting at St. Louis will be. America is the apple region of the world, and around St. Louis is the apple part of the apple part, and we will meet all of the apple growers there, and all of the people at St. Louis; this will be the greatest apple show on earth; we must not lose our reputation. We are not afraid of California, for she raises pumpkins and we raise fruit. We will not show against size. We do have our neighbor States to compete with and we must show them what we can do. We believe we have some of the best fruit lands in the world, and we must develop them. Some specimens of fruit are good and some are bad. There is much in a choice. I believe that some of our members do not thoroughly understand selecting specimens for a show. We must not have an apple that is defective in any way excepting it be in size and color; one that has a scab or worm, or anything of that kind should be left entirely out in making this selection. I remember when Fitzsimmons and Corbett were going to fight out West. Corbett said if Fitzsimmons exposed his stomach for one fiftieth part of a minute he would hit him there. That is the way with our competitors. If they have good apples with no worm bites they will take the premium and you are left. Remember in making your selections to select perfect specimens. We have found that the best way is to save the specimens when you are gathering the apples, and select the best from the best. I want to tell you this Mr President. The last barrel of apples that I sent to Paris were dipped in blue stone before they were sent. At first they refused to take these apples because they thought the French people would not want medicine on apples, but they did show them and they were all right. This will help to preserve the fruit. I put two pounds to fifty gallons of water. I don't put lime in when I am going to show the apples, but the blue stone will scarcely show at all. Whether necessary or whether not it is considered fine. The committee will send you parchment paper in which to wrap the apples. All of the apples should be marked so that anyone could tell whose they were and what they were. People sometimes get lost in a big crowd. I am going to have printed labels on all of my fruit, and I think this would be a good idea for all of us to follow. These labels will cost probably seventy-five cents a thousand. My labels will read as follows: "Benoni, Grown by Joe A. Burton, of Orleans, Indiana." This matter is important, and we must consider it so. We must all make ourselves a committee of one to look out for fruit and talk to the owners about it. If you think anyone has apples make an inquiry and urge the man to let you have them. I would suggest that men be appointed in different parts of the country to look up this matter and secure fine specimens. The apples that I sent to Paris were worth ten times as much to me there as they would have been at home. I sent the best barrel I had and that barrel was worth $150 to me. Do your best.

President Stevens: I would like to have a word along this line from Mr. Johnson, who has had considerable experience in the way of collecting fruits, and probably he can give us some suggestions along this line of collecting fine specimens for the St. Louis Fair.

Sylvester Johnson: I don't think I can add much to what has already been said. I accept as the truth all that Mr. Burton has said in regard to that matter. I hope you will remember what he has said when you get home. It is important indeed that we make a good showing at St. Louis. I was made to blush many times at the World's Fair at Chicago, as I was one of the judges of fruits, when people from other States would say: "What is the matter with Indiana? Don't you raise fruit in Indiana?" Now this time I would like for Indiana to hold her own; we can do it; we have made very great advancement since the Fair at Chicago. We want to keep up our reputation, and the only way to do it is to make a good exhibit at St. Louis. In Philadelphia in 1876 we made a creditable exhibit there. The point about labeling the fruit was a good one. I suppose the committee will see to all of that. We must make a great effort to get fruit to put in cold storage to use before our fruits are ripe next year. If I live I will do all I can for the State of Indiana, and for the State Horticultural Society.

Mr. Ragan: It is now settled that the appropriation has been allowed to Indiana. At Chicago we received not a cent for the exhibit. If I remember correctly there was not a plate of fruit from Indiana. The horticulturists of Indiana are like the farmers that teach their boys to help themselves. We got together some fruit and sent it to Philadelphia in care of Mr. Johnson, who has just spoken, and I remember in round numbers when the bills were all paid we were out $700.00.

Mr. Johnson: Not so much, Mr. Ragan, only about $250.00.

Mr. Ragan: I guess I was mistaken; the limit was $700.00. At this time we won distinguished honors, the medals, but we had a very high compliment on the Bartlett pears grown by Mr. Johnson, in Irvington. At the Paris exposition Mr. Burton received a very high compliment on his Winesap apples. I am glad that you are to receive five thousand dollars from the State; even though this is small compared with our sister States, this will help very materially. Missouri had thirty thousand and Illinois had twenty-five thousand at Chicago. I hope to see Indiana recover form the disgrace she experienced at Chicago and New Orleans. Now, as the exposition begins too soon next year for you to have fruit, you will have to make arrangements to have it kept in cold storage until time to use it, at the opening of the exposition. Before the exposition closes the fruit will be ripe and can be used, but you must prepare for the time before this. As the fruits begin to ripen they will be sent in. I am quite sure that the Indiana people will spend the five thousand dollars well and judiciously, and will make a show which will be a credit to the State. While I have for some years been out of the State I am still a citizen of Indiana, a native of Indiana, and I want to see Indiana make up for past delinquencies at the coming exposition.

President Stevens: I will say for the benefit of some who are not familiar with our plan of conducting this exhibit and collecting fruits for this show, that we have thought it best to appoint a committee and empower them to superintend the matter. I have selected Mr. Flick, our Secretary, Mr. Sylvester Johnson, and Mr. Grossman. That committee will take up this work and superintend it. This fund of five thousand is not available until after the money has been expended, but this society has some money that can be used to conduct this work. I ask Mr. Flick to make some suggestions in regard to the work that needs to be done by this committee.

Mr. Flick: I think almost all of the ground has been gone over pretty thoroughly in regard to the plans under which this work will be carried foward. I am very glad to have Mr. Ragan with us. I feel that we need all the help that we can get; all the wisdom there is to assist us. We are not going to fail, but if we should fail this time there is no use for Indiana to claim to be a fruit State hereafter. We lose a great deal by being too modest. There is no State in the Union that has better facilities than Indiana as a fruit State. This is our advantage. The State Forestry Association has investigated the matter and say we have over seven hundred thousand acres of land in Indiana that is unproductive, that does not bring in a dime to its owners or to the State; and that nearly half of this, almost three hundred thousand acres is the very best fruit land, and wonders why we do not go to raising fruit on this. We do not raise enough fruit, not enough for our own use. We would have less sickness among adults and more healthy children if more fruit was used. If we would plant this land to fruit, fruit would be more plentiful and more children could have fruit. We must have the best of fruit for this exposition. Where can we get it? We must find out where this fruit can be had and get it. If you have any fruit that you wish to have exhibited write me at Lawrence, Indiana, and I will send you a leaflet with full particulars. Under the regulations the grower can have credit, also the county and the State. The same fruit can be shown under the three heads. I think this is a good arrangement, and can be made a good medium of advertisement for fruit-growers. Mr. Burton means by saying that his apples were worth $150 a barrel to him, that they are worth that much in advertising. We must put a great deal of this fruit in cold storage to use until fruit comes next year. Four or five months of the seven must be made of fruit that is grown this year. It will take thirty barrels to fill the tables, and they should be changed twenty to twenty-five times. So you see it will take several hundred barrels, and we will have to get quite a good deal of fruit together. If you have nothing more to give us, give us a single plate of apples, but every specimen must be a perfect specimen, for we can not afford to send anything else. If you have any suggestions to offer we will be glad to receive them. When we meet at our summer meeting next year we hope to have a love feast over our success at St. Louis.

Mr. Jones: I remember a few years ago that our local society insisted upon sending a barrel of apples for this occasion. I believe the apples went to Paris. Now, we have three local societies in Madison county, and I think they are represented here today, and if the chairman of this Society would take this matter up it would be an easy matter to get a barrel of apples from each society.

Mr. Sylvester Johnson: As Treasurer of this Society I feel as if I should say something in regard to the finances. We can furnish the money for all the expenses of gathering the fruit, from our Society, and this will be refunded out of the appropriation. After this meeting is over and all expenses paid I think we will have about three hundred dollars left; on the last day of October we will have fifteen hundred dollars. We will have money enough to bear the expenses that may accrue in the meantime. It was said to me by one of the leading men of the State department that our Society was doing more for the amount of money than any other organization in the State, so we will receive the $1,500.00 on the last day of October. I wanted to make this statement so that all would know that we are in good financial condition.

President Stevens: It seems that most of the talks have been along the line of apples, but we are to have all kinds of fruits, and when the committee sends out instructions they will advise you along all of these lines. Now, I fear we have no more time to devote to this subject this morning, so we will take up the regular program. The committee having this in charge have arranged to see Superintendent Taylor of the World's Fair, for a perfect arrangement. After this no doubt every member will receive a circular of instructions and can go to work on this at once. The first thing will be, "Shall the Farmer Buy or Grow His Fruit for Home Use?"

Joe A. Burton: I would like to say a word before Brother Jones takes the floor. In sending my apples to Paris I sent as many as possible of a variety. Your chances for getting a premium are much better if you have plenty of fruit; you don't want to stop at a plate or two plates, but you should have enough to last through all the show, the whole season through.

Mr. Isaac Jones: I shall ask this Society to excuse me for not writing a paper this time. I believe that I can say that I never go back on writing a paper, but this time I had so much on hands I just could not, but I am only to introduce the subject, and leave it for you to discuss. The question before us is "Shall the Farmer Buy or Grow His Fruit for Home Use?" I have sometimes thought that I might as well ask the question "Shall a farmer raise his pigs for his own use?" At first I thought there was but one side to the question, but the more I think about it the more I see that there are two sides, and this is a question that will solicit discussion. I hardly know what to say on this question for if I should say that the farmer should raise his own fruit you would take me to task and say, "Why don't he?" Three-fourths of the children of our country are almost starving for fruit. The parents do not provide it for them. Their health, comfort and happiness suffer; but the parents look at the question from a financial basis only. It might be well for a farmer to be a special farmer, for one to raise hogs, another fruit, etc., but the question is, "Would we use enough fruit if we had it to buy?" I'll tell you I believe it is a fact that if a farmer does not grow his own fruit he will use very little of it. If the farmers would use more nice, fresh fruit, there would be fewer doctor's bills. It is very expensive to buy fruit for the table, I know. This season of the year our tables are very scarce of fruit. There are a few apples in the country, but outside of these there is scarcely anything, not even to buy. We bought some strawberries this summer, but they averaged us thirty cents a quart, and that is rather expensive. How many of us can afford this? I suppose I will be criticised for this statement, but we should all have strawberries. I have planted them time after time, but somehow or other they don't do just right; I have several things that I have to contend with along this line. I think we should certainly grow a sufficient amount for the table. I find there are farmers here that know a great deal about horticulture, and have fine orchards and fine fruits. Mr. Chairman, I am really sorry that I did not write a paper; you know I usually come up to time, and you must pardon me this time. I will now leave the subject for your discussion.

Mr. Snodgrass: This is my first attendance at a meeting of this kind, and I am an amateur in the fruit business, and I have had experience in buying fruit for family use. I have many times bought it rather than grow it. I have heard a great many farmers say that they can buy their fruit cheaper than they can grow it. That may be the case; they buy what they use, but they do not buy what they ought to use. Now for an illustration. We had strawberries thirty-seven days; we commenced to use them on the 27th day of May, and had our last mess on the 4th of July. We used five quarts of strawberries per day. If we had bought these berries the bill would have been rather high, but it might have saved a doctor's bill. This would be a very cheap doctor's bill. This is only the commencement of the fruit season. We have raspberries, blackberries, and the larger fruit, etc., the year around. If we had all the fruit we ought to use it would probably cost us a hundred dollars a year, and that is a pretty big item. Most farmers can not do this. But as has been said, it is a question as to whether we should raise or buy our fruit. This is an old adage: The old men and women and boys and girls run after it, and the children cry for it. Yet some people say they do not care for it; but when it comes to the real facts, we all like it. We ought to have it, but the question is how shall we get it? It costs something to grow fruit. There is only about one farmer in ten that knows anything about fruit, and should these people try to raise? They never give it any particular study, and as has been said, the first and important thing is to learn something about it before you undertake to raise it; understand it before going at it. I commenced seven years ago, and like Brother Jones, I commenced at the wrong end; I commenced, and studied afterwards. I would have saved a great deal if I had reversed this. Suppose I should go to a railroad man and make an application for a position as a telegraph operator. This would be just about as sensible as to try to raise fruit without knowing anything about it. We must be prepared, but as I have said, this preparation costs a great deal of money. A spraying apparatus costs $20 or $25 but some irresponsible agent goes around over the country selling a spraying apparatus for from $3 to $5. These will not amount to anything. We must get something that will do the work.

Professor Troop: I want to suggest that the very best equipment that one can have is a knowledge of how to do these things, just as the last speaker has stated. Just one instance. A man came to me for information concerning strawberries. He said: "I have nice plants, and nice vines, but they do not bear any fruit." I asked him how many and what varieties he had. It later developed that he had only one variety—a pistillate; so it was easy to know why his plants did not bear. He must have two kinds—staminate and pistillate—in order to have fruit. He had cultivated the plants well, and all that, but that did not do. Now, just a little knowledge right there would have saved all this trouble, and he would have had a good crop of fruit. So I say the best equipment one can have is a knowledge of the business, and that is what we are trying to get at this meeting.

Mr. Milhous: Do any of us know how much fruit farmers will use? I have been raising berries for quite a number of farmers in the community, and for the first time in twenty-five years we bought our berries this year. We bought berries at fifty cents a gallon. We would not do without strawberries; I would not do without them if they were $2 a gallon. This year wet weather and hay used as covering made a meadow out of our strawberry patch, and as a result we bought our berries. There are a great many farmers that do not raise their fruit because they do not think they have time to attend to it. I had a neighbor that I had been trying to get to raise strawberries, and he always gave as his excuse that he did not have time. He came past one day where I was setting out plants, and stopped and began talking. I thought I would test him, so I commenced counting my plants. I planted two hundred and fifty. I then said to him: "Look here, neighbor; you say you haven't time to plant strawberries. Two hundred would be all that you could use, and you have talked to me while I have planted two hundred and fifty. You have time to plant a patch every day you live." Two years after that he came to me and said: "I have concluded that I have time to plant a strawberry patch." You will use ten times as much fruit at your table as you would think you would use. It is the same way with pears. Some of my neighbors will come and buy Keifer pears at $1.00 a bushel, when they could just as well raise them themselves, for they could buy all the trees they want for 50 cents, and have pears in bountiful supply.

President Stevens: We have spent as much time on this subject as we can spare, so we will take up the next one. "Shall We Try to Reinvigorate the Old Orchard or Plant New?"

Mr. De Vilbiss: Friends and Fellow Citizens, Mr. President—"Shall We Try to Reinvigorate the Old Orchard or Plant New?" Yes, to both of these questions. There is no branch of agriculture so badly neglected as our farm orchards, and the methods and means of restoring them are so little understood that it seems as if our farm orchards will soon be a thing of the past. Year by year our family and market supply of fruit grows less and less and we reluctantly and naturally begin to think, "What am I to do for fruit?" We go into the orchard and find the location right, and the orchard where we want it, but many trees are missing, and those that remain are partially dead. The question arises, "Shall I plant a new orchard or try to build up this one?" You perhaps inquire of the neighbors, and most of them will say, "You can't make a tree grow in an old orchard." So the orchard is neglected for another year; perhaps many. We admit that it is a difficult task, and we do not wonder that only 13 per cent. of all trees planted ever come to bearing when conditions are as far removed from Nature. Nature is a severe taskmaster, and demands a strict compliance with her laws before she will yield up her treasures. The old orchards have been robbed so ruthlessly and so systematically through cropping and pasturing that not a vestige of vegetable mould remains in the soil. The ground is so bare that even the leaves, nature's own covering, are scattered hither and thither, and the soil is reduced to abject poverty. If your orchard is where you want it, and is not so far gone that it will not send up vigorous water-sprouts and blossoms freely, I would say most emphatically, "Keep it then, and restore it to a full stand and bearing." This can not be done in a year, but it can be done quicker than you can get an entire new orchard. It is not surprising that so many people utterly fail to make young trees grow in an old orchard. What would you think of a man who would start to plow corn in an old sod field? Suppose he would dig a hole, drop in his corn, cover with the turf or sod and leave it to grow as best it could. Later in the summer he would turn in the cattle to eat the life out of the few stalks that might survive the treatment, then abuse the seedsman because he didn't get a crop. This may seem overdrawn, but I have seen the same thing done with young trees many times. On the other hand, I know of sixty-one young trees planted in an old orchard of one hundred trees, and every one lived and came to bearing. The first thing to do is to prune out all dead limbs, and balance up the rest. Dig out all old stumps and worthless trees and burn the rubbish on places where trees are to be planted. Next, plow with a breaking plow with jointer and all attachments, to make a first-class job. I throw the furrow to the trees; roll the sod down, level it and harrow thoroughly. If the orchard has been in sod a long time, I would continue this cultivation every ten days or two weeks until July. Then sow cow peas, crimson clover, or anything to make a cover crop for the next winter. Any time in October or November dig the holes for the new trees. Be generous and dig these three or four feet across and one foot deep. Pile the dirt out to one side, level it up and put on a bushel each of ashes and manure, letting the fertilizer remain. Trees must drink in all of their food, and in order for them to grow and flourish at the transplanting time, when they demand the best attention, the soil must be kept open, so that it can receive and hold the moisture to feed the young trees that have just been transplanted from the very best conditions. In the spring thoroughly incorporate the fertilizer with the soil. To develop wood growth plenty of potash is necessary, and common wood ashes is the cheapest source of supply. Buy your trees of a reliable dealer or nurseryman. Buy enough of good selected varieties to fill all vacant places, and plant your trees yourself. First, all broken or bruised limbs and roots should be cut away, cutting the roots from the under side, so that when the tree is planted the cut places will rest on the soil under the tree. Just before planting, dip all the roots into a paste made of mud and water. Lean the tree to the southwest sufficiently so that it will not make a shadow at 1 or 2 o'clock, and shape the top. It is necessary to commence the cultivation as soon as the trees are planted, and continue every ten days or two weeks until you sow the cover crop for the next winter. On or before the middle of May and June make a solution of soap and water—one-fourth pound soap and one gallon of water—and wash the bodies of all the trees. In July, again, it will be necessary to look closely for what is commonly called the flat-headed borer. With a sharp knife cut out any you may find and fill the places with mud—clay and water mixture. A bearing orchard in good condition will demand what is equivalent to about twenty loads of the best stable manure, for vegetable mould, per acre yearly. If the ground is impoverished it will demand the more in proportion. An old orchard will feed up fifty loads per acre. If you can supply it, all the better, and your orchard will respond like the Dutchman's cabbage. Some one asked him how he kept the worms from spoiling his cabbage. He replied: "Why, the worms don't bother my cabbage. A worm at the center in the morning is on the outer edge at night, and he gets discouraged and gives it up."

Remember in all your workings with young trees that they are living things, and that they will respond to kind treatment and kind acts as surely as the pig in the pen or the cow in the stable.

Speaking of clover. Now is an excellent time to sow clover. It will pay you the first season.

Mr. Garretson: But where do you get good crimson clover seed? I have been unable to find it.

Mr. De Vilbiss: Mr. ———, Ft. Wayne, sells it for $4.50 per bushel This grows quickly and does quick work. It is the best fertilizer that I know of.

Mr. Garretson: Would you plow that under?

Mr. De Vilbiss: Yes; I would plow that under, and the next spring use a solid comfort harrow. This is what I like to use.

Mr. Garrettson: Do you think it best to plow an orchard?

Mr. De Vilbiss: I do.

President Stevens: We haven't time to discuss this subject further. The next subject will be, "Some Things Learned from Experience in Spraying," by Joe A. Burton.

Mr. Burton: It seems to me that this question of spraying is very important, and we should all be interested in it.

SOME THINGS LEARNED FROM EXPERIENCE IN SPRAYING.

JOE A. BURTON.

Thousands of articles have been written on spraying. The Government and experiment stations have published many bulletins on the subject. Then why should I, parrot like, go over it again?

Many believe that apple growing with me is more successful than with other growers, and would like to know how much this is due to my manner of spraying, and how it differs from the same operation by others. I believe that my spraying differs from that of others mainly in the power behind the pump. Morrill & Morley make the best spray pump I know of, and Mr. Morrill probably stands at the head of the list of fine peach growers; yet I can not accept Mr. Morrill as my instructor in spraying. He told us at Indianapolis that he sprayed two rows of fruit trees at once, two men handling the nozzles and one to pump. If I should tell my men to spray that way they would want to know if I had gone crazy. They know that we can sprinkle, but not spray against the wind. Morrill & Morley offer as the climax for a spraying outfit their largest pump, the kind that I use, and six discharge nozzles, provision being made for only one man to pump. I use four discharge nozzles and two men—not boys—to pump. They claim as a great recommendation to their pump that the handle is malleable and will not break; but my men break them frequently. When I ordered three handles at one time last spring they seemed worried, and couldn't understand how I broke so many handles. Evidently they know nothing about such spraying as I practice. Frequently pump-makers claim as a great merit of their pumps that they will throw a fine spray over a forty-foot tree. My men know they can't throw a spray; only place it.

But why do I lay such stress on a misty spray?

First. Because it is more economical of material. One drop of water on a leaf or apple does not cover a large space, but if broken into a hundred particles, may cover half the leaf.

Second. It is only by a misty spray that you can lodge the poison in the calyx of the apple. You may dip the apple a half dozen times under water and the calyx will still be dry, just as a goose is dry when she has been dipped half a dozen times. But a dew will wet the goose, and a misty spray will wet the calyx. It is quite to our advantage that the calyx of the apple is thus constituted. It prevents the poison being washed out while the calyx is closing. Much is being claimed now for the sticking properties of disparene. I hope these claims are true. But it can't stick in the calyx unless it is so placed there that it will stay till it dries. Paris green will stick fairly well if applied in a proper spray. It is very probable that not only most of our fruit growers, but scientific investigators, fail to properly apply their spray. One investigator stated that 70 per cent. of his fruit was affected by the second brood of codling moth after trees had been duly sprayed. If such can be the case where the spraying is properly done, it surely won't pay to spray for codling moth.

Another essential in proper spraying is to have the mixture well stirred. A pump that is expected to do this by a return stream is a sure failure. It must be done by a mechanical contrivance within the vessel. One company that wanted to furnish me a spraying apparatus that was to be operated by sprockets on the wagon wheels, wrote me that Senator Dunlap said it was not necessary to agitate the mixture. I have great respect for Senator Dunlap as an apple grower, but prefer to risk Joe A. on spraying.

Have used disparene this year instead of paris green, but only one pound to 50 gallons of water. If it is so mild that it requires three pounds to do the work of one-quarter pound of paris green, it is certainly unreliable. We would not often get enough into the worm's stomach to cause him any inconvenience. Lime, especially dry lime, is very little soluble in water. When our paris green is mixed up with lime and deposited in the calyx of the apple and the calyx closes over it, there is not much chance for it to get out. It will not dissolve and wash out. The rain can not readily strike it in such a way as to knock it out. So when you find your sprayed apples badly infested with codling moth, know ye for a certainty that the spraying was not properly done.

Mr. Snodgrass: Did you ever use arsenate of soda?

Mr. Burton: I never have. I can't get it mixed up; it is too coarse. I don't get good results from it, so I never use it.

A Member: Do you know anything about the dust process of spraying?

Mr. Burton: I am not disposed to try it. As I said before, in spraying I always use a brass pump, as they will not corrode. A gentleman has just said that his brass pump has corroded, but I think he is mistaken, for if you would leave a brass pump for a year it would not corrode, but it might get clogged up. The contents of the vessel will be just as strong when you begin as when you quit, if it is mixed right. The pump will keep the contents stirred up. Whenever we make a stop of a few minutes we detach the plunger and stir up the contents before starting to work again.

Mr. Young: I have used the dust spraying for about two years, and I prefer it to water. We, too, thought that it would be a little dusty, but I find it cleaner than the liquid. Of course we always take the windward side, and we get along very successfully. Of course I have not used it long enough to tell whether it will answer every purpose or not, but it has been very satisfactory.

Mr. De Vilbiss: I want to say that I can burst my hose with 150 pounds pressure. I can't break the handle of my pump, as Brother Burton says he does, but I can burst the hose. I believe he has an inferior handle.

Mr. Burton: I must say that Brother De Vilbiss has an inferior hose. I used to buy that kind, too, but the hose I have now will stand three hundred pounds pressure before bursting. It is a four-ply hose, and is very strong; in fact, I don't believe three hundred pounds pressure would break it. The handle on the pump will break before the hose will burst.

President Stevens: This is all the time for this subject that we can spare. If the Committee on Fruits is ready to report, we will hear that report.

Mr. Teas: The following awards were made:

Golden Sweet, W. B. Flick, first premium.
Maiden Blush, W. B. Flick, first premium.
Wealthy, Amos Garretson, first premium.
Wealthy, Theodore Wilson, second premium.
Yellow Transparent, Theodore Wilson, first premium.
Red Astrachan, L. B. Custer, first premium.
Duchess, L. B. Custer, first premium.
Tetosky, H. H. Swaim, first premium.
Red Stripe, H. J. Hale, first premium.
Whitney Crab, H. J. Hale, first premium.
Whitney Crab, H. J. Hale, second premium.
Most beautiful apple, J. M. Zion, first premium.
Sweet Bough, H. M. Stout, first premium.
Largest apple, J. M. Zion, first premium.
Eight plates plums, J. W. Apple, first premium.
Burbank Plums, J. W. Apple, first premium.
Native Plums, H. J. Hale, first premium.
European Plums, H. J. Hale, first premium.

Freeman Smith, of Centerville, Ind., showed very fine specimens of blackberries of remarkable size and good flavor; also samples of a new native white or red blackberry of better quality than usual in berries of this class.

There were also several plates of fruit observed that had no entry card that your committee could find. Many of these were worthy of mention if we could have found the names.

Wilder's Early Pears, H. M. Stout, first premium.
Clapp's Favorite Pears, H. M. Stout, first premium.

President Stevens: You have heard this report. What shall we do with it?

Mr. Swaim: I move you that the report be adopted.

The motion was seconded and carried.

President Stevens: We will now have the report of the Committee on Flowers:

Collection of Roses, Mrs. W. W. Aikens, Franklin, first premium.
Dahlias, Mrs. W. W. Aikens, first premium.
Dahlias, Mr. E. Y. Teas, Centerville, second premium.

Sweet Peas, Mrs. Amos Garretson, Pendleton, first premium.
Sweet Peas, H. J. Hale, second premium.
Gladioli, Mr. E. Y. Teas, first premium.
Pansies, Mrs. W. W. Aikens, first premium.
Old-fashioned flowers, Mrs. W. B. Flick, first premium.
Flat bouquet, Mrs. Hale, first premium.
Flat bouquet, Mrs. Garretson, second premium.
Round bouquet, Mrs. Aikens, first premium.
Round bouquet, Mrs. Hale, second premium.

Mr. Thomas: I move that this report be accepted and adopted.

The motion was seconded and carried.

President Stevens: We will now have the report of the Committee on Fees and Salaries.

C. M. Hobbs: Your Committee on Salaries would recommend that the Secretary of this Society receive $300.00 per annum, and that the Superintendent of the Experimental Orchard receive $250.00 per annum.

C. M. HOBBS,
E. Y. TEAS,
J. W. APPLE.

Mr. Johnson: I move that this report be adopted.

The motion was seconded and carried.

The meeting was now adjourned for dinner.

AFTERNOON SESSION.

Wednesday, August 5, 1903.

President Stevens: The first thing on the program is an instrumental selection by Miss Martha Chambers.

(Selection played on the piano with sweetness and skill.)

President Stevens: The next thing is a recitation by Mary Mozingo.

(Recitation.)

Mr. Flick: I think this is exceedingly fine for this little lady. I received a letter from Mr. Thomas asking permission to bring his little granddaughter with him. It was granted, and we are very glad indeed that she is here, and hope that she will be with us many years. I think we should give this little lady a vote of thanks

Mr. Ragan: I think that the meeting of the American Pomological Society that is to be held in Boston next month is of sufficient importance to justify the attention of this Society. I call the attention of this meeting to the importance of sending a delegate from this Society to that meeting. There should be one or two delegates. I think this meeting is to be held the 10th, 11th, and 12th of September.

H. H. Swaim: I believe that it is customary for this Society to send delegates to this meeting, is it not?

President Stevens: It has been so.

H. H. Swaim: I move you that Prof. Troop be selected as our delegate to attend the meeting of the Pomological Society.

President Stevens: I understand this is a matter that belongs to the Horticultural Board.

Mr. Teas: That is correct.

H. H. Swaim: Then I withdraw my motion under the circumstances.

President Stevens: We will have a report from the Committee on Resolutions if the report is ready.

Mr. Bartholomew: Mr. Chairman, your committee submits the following:

Whereas, The officers and members of the Indiana Horticultural Society have been royally entertained during the past two days, therefore be it

Resolved, That we tender our thanks to the several horticultural societies and farmers' clubs of Madison County for their efforts to make this midsummer meeting of our Society a success;

Resolved, That we especially thank the good people of this immediate neighborhood for their hospitality. We feel deeply grateful to them not only for abundantly supplying our wants from time to time here at this place of meeting, but for opening their homes to us and making our stay here pleasant. We will carry with us pleasant memories of this meeting and of these excellent people who have done all in their power to make us feel that we are truly welcome to their community.

H. S. K. BARTHOLOMEW,
J. TROOP,
H. H. SWAIM,
Committee.

Sylvester Johnson: I move you that we adopt the resolutions as read.

The motion was seconded and carried.

Mr. Burton: I wish to say just a few words. These things are closing up the meeting of the Horticultural Society, and here we have met people that we do not meet everywhere. This is an ideal meeting place. This is the biggest meeting we have ever had in the summer; we have never had such treatment. What other place will be willing to undertake this? Where will we get and have Amos Garretson to take us every few minutes to and from the cars? Where will we get this kind of entertainment again? You had better look to what you are going to do, Mr. President.

President Stevens: This is entirely out of order. We will now proceed with the program. The first thing is the Medicinal Value of Fruit, by Dr. Charles.

Mr. Flick: Ladies and Gentlemen—I think it only fair that there should be a word of explanation given here. The committee gave out the subjects to the persons who were chosen to present them without consulting the parties. We gave this subject to Dr. Etta Charles of Summitville without consulting her. She is willing to handle this subject at some future time, but today she thinks she has something which she can present to us not only as horticulturists, but as a common people, which is of more importance to us today. I hope that she will have the assistance of Dr. Hurty of Indianapolis in discussing this question. Her subject is "Tuberculosis."

TUBERCULOSIS.

It was with a sense of keenest pleasure, I received your invitation to meet with you today. I said it will be a fitting time to tell you about that dread disease, that is known as the "great white plague." A disease so terrible in its ravages that in the United States it destroys an army every year, so insidious in its onset that the doomed victim rarely has knowledge of his infection until his hour of help is passed, so deceiving in its destructive work tnat the patient never ceases to believe he will be better tomorrow and well as soon as "the doctor can find something to make his breathing easy." These hopeful periods last until the Grim Reaper completes the work, and with tears and prayers and fears for those who live you consign the emaciated body to its grave.

Tuberculosis spares no age—the infant in the first hours of its existence, and the centenarian alike wither under its touch. The queen in her palace, the Bushman in the African jungles yield up their lives to satisfy this king of diseases. No tissue of the body is exempt, it feeds on all, and the world is its pasture. If you were to consult a medical dictionary as to the meaning of the word "tuberculosis," it will tell you that it is an infectious disease caused by bacillus tuberculosis and characterized by the formation of tubercles in the tissues. These tubercles undergo caseous necrosis and tend to spread in all directions, more especially in the route of least resistance. Infection may also be disseminated throughout the body through the lymph and blood-vessels. The degenerated tubercles break down, forming in the interior of the body cavities filled with purulent liquid and degenerated matters. The various tissues and organs, as the lungs and the lymphatic system, are especially prone to infection, to a less degree the spleen, kidney, liver, intestines and brain are liable to become infected. The bacillus will not grow outside of the body except in an artificially prepared medium. You are to understand that it will not multiply in dust or clothing. A house or clothing or place in the street becomes infected by a person who has the disease expectorating on the floor, on the street, sitting in the yard expectorating, expectorating on carpets. It dries and the winds carry it. We all breathe it. If our physiological resistance is good, we destroy it. If our vitality is low and continues so, we can not destroy the bacillus; in time it assumes the mastery and we fall beneath its blows.

Upon receipt of the invitation to read a paper before this institute I wrote Dr. J. N. Hurty, whom you all know as the efficient Secretary of the State Board of Health. Dr. Hurty stands at the head of the medical profession in Indiana today in preventive medicine. To my request for statistics, he gave me such a kind and interested reply that I give you his letter. He said: "In 1902 there were 4,392 deaths from tuberculosis in Indiana. Almost two-thirds of this number were females, which is a significant fact. This is accounted for on the basis that women more generally work in the house and do not have the advantages of outdoor air and sunshine to the same extent as men. While tuberculosis attacks persons of all ages, it is most destructive between the ages of fifteen and thirty-five. After the age of thirty-five, the deaths decrease from this cause very rapidly. To illustrate this, in 1902 there were between the ages of ten and fifteen, ninety-seven deaths, and now mark how they jump up when they come to the next age periods. Between fifteen and twenty there were 399 deaths. Between twenty and twenty-five there were 670 deaths, between twenty-five and thirty 594 deaths, and between thirty and thirty-five 464 deaths. From this period on there is a steady decrease in death from tuberculosis. The lesson of this is, tuberculosis shows a preference for the most productive and useful period of life. About the time the child has been educated at the expense of the State, after reaching the age of fifteen, then it becomes extraordinarily susceptible to tuberculosis. This susceptibility is to a great degree caused by the child being compelled to breathe so much bad air at school. Being forced to sit hours after hours in schoolrooms which are filled with foul air, the breathing organs become weakened and leaves them open to the invasion of consumption infection. Inasmuch as consumption is purely a house disease, caused by the breathing of foul air, one would suppose that farmers would be particularly free from it. The statistics show, however, that while there is less consumption in the country than in the cities, still the difference is very small and the explanation why the disease prevails among farmers to almost the same degree as among city people is because the farmers as a rule do not ventilate their bedrooms and their houses. The advantages accruing from living all day in the open air and in the sunshine are entirely nullified by sleeping in unventilated rooms at night. If the farmers would see to it from this time forth that their houses were thoroughly and continuously ventilated, consumption would go down rapidly among their members. Another fact which farmers must remember is that houses must be built up off from the ground, so as to avoid dampness. The house that is built flat upon the ground, that is damp and in which moulds are known to grow is the home of consumption. Only slight observation is necessary to confirm this statement. Every dwelling house should be raised three feet above the ground and have beneath it a dry well ventilated cellar. If this simple thing were done, sickness and doctor's bills would decrease to an enormous degree. There is a superstition that night air is injurious. People who harbor this superstition should remember that in the night there is nothing else to breathe but night air. To shut it out by closing windows and doors and then breathing over and over the night air that is in the house is the cause of disease.

"Only one State at the present time has a hospital for consumptives and this State is Massachusetts. At the State consumptive hospital which is located at Rutland, Mass., the indigent consumptives of the State are received. Eighty per cent. of the *incipient* cases are cured and returned to their homes. While at the hospital these patients are taught how *not* to have consumption. They are taught that consumption is a *foul air disease* and that people must breathe pure air, otherwise they will suffer from consumption, pneumonia, coughs, colds and other diseases of the air passages. These people having been cured return to their homes and become missionaries to teach others what they have learned and what their experience exemplifies. The people at large generally listen attentively to these patients and do not call them cranks, which they invariably do when doctors try to tell them the same thing. The greatest advantage of the sanatorium is to supply a constant stream of teachers to the people rather than to directly preserve a few hundred lives.

"The Indiana State Medical Society at its last meeting held in Richmond, early in June, appointed a committee of seven to investigate the tuberculosis question in Indiana, to report with recommendations to the next meeting. The State Board of Health, at the present time, has ample powers to take up the subject of educating the people concerning the prevention of tuberculosis, but no means are supplied, and therefore the machine lies almost inactive."

The medical profession as far back as its history reaches has believed consumption an infectious disease, but not until 1881 was the bacillus causing it isolated. Since then the profession has made continual warfare upon it, but our warnings fall upon deaf ears. The laity will not aid us and the slaughter of the innocent goes on. Many people believe you must inherit it and when a member of the family falls a victim they all wonder where they got it. I wish I could impress you so you would never forget it that every church, every theater, every large store, every penitentiary, every jail, every railway station, every passenger car, every street car (the greatest spitters on earth inhabit the cars), every place where people congregate have tubercle bacillus living in the dust upon its walls, in the dust that is in the carpets and the cracks of the floors. This dust has only to be stirred up and breathed into the warm body where the best medium (heat, moisture and nourishment) for its propagation exists to revive it into activity. The bacillus retains its virulence months and years in both a dry and moist state outside the body. Now as consumption is a germ disease and as the bacillus does not propogate outside the body it is a preventable disease. You all know when you reason the matter that it would be much easier to destroy the bacillus outside the body than after it has found lodgment within it.

Dr. Hurty has told you about the building and ventilation of your houses and the importance of pure air. As the sputum is the infectious part your effort must be to utterly destroy it. A consumptive should never spit except into a spit cup. This may be of pasteboard and burned before the sputum dries. The handkerchiefs used should be burned as soon as discarded. The air of the room of a tuberculosis patient whose sputum is properly taken care of is not a source of danger to a family. Scientific experimentation has proven sunlight a powerful germicide.

"W. C. Mitchell and H. C. Crouch of Denver reported the results of exposure of tuberculous sputum to sunlight for six hours daily for varying periods. Of guineapigs innoculated with sputum exposed more than thirty-five hours none died; whereas sputum exposed only twenty-five hours was uniformly fatal to them." Sputum exposed upon a sun exposed street will dry, be carried in the air and drawn into the lungs of every traveler before twenty-five hours have passed, and like the parable of the sower who went forth to sow, some will fall upon stony ground, perhaps the most of it, but some, God pity, will fall upon good ground, ground especially prepared by a recent cold, a system debiliated by recent pneumonia, will take root and the harvest will be a thousand fold. Already the harvest in Indiana alone for January, February, March and April has been more than 1,500 souls as the monthly bulletins issued by the State Board of Health show.

If consumption should get into your herds, every man would arise to exterminate it. How much more is a man's life worth than a beast's.

House cleaning comes twice a year in all well-regulated families. It would be an easy matter to burn a formaldehyde candle in each room after the furniture and draperies had been removed and the room cleaned and another after everything was put back. This would destroy every germ of whatsoever character. The cost is not great and the benefits could not be measured. If it so be that this dread disease should fasten itself upon one member of your family by the most exacting and careful measures you can limit it and exterminate it. Neglected, it may sweep your home of every loved one.

Eight years ago when I first located in the city of Summitville, a young man came to me suffering with pulmonary tuberculosis. His family consisted of father, mother, two brothers (one married) and one sister. I cautioned them as to the infectious nature of the disease. During the pleasant days he sat out in the yard and expectorated. At night he expectorated on a piece of carpet that was placed beside the bed. His health improved in the fall and he went to work. Three years later his mother died with intestinal consumption; eight months after that his younger brother died with pulmonary consumption and one year later his married brother died with the same malady. A young lady who lived in the same block was stricken with the same disease. She used to go over, sweep the floor and set the house to rights while the mother lay so ill, though warned against it. Last summer she preceded this young man to the grave two months. Four people went to their death as a result of this man's infection and three homes became a menace to the community, and the end is not yet.

I have learned since writing this paper that a 17 year old boy who worked in a store with this young man has the disease. I know this boy well. There is no consumption in either his father's or mother's families. He has one brother 21 years old, one 19 and two brothers and two sisters younger. He is allowed to expectorate when he pleases, and so it is an endless chain of sickness, agony and death. To break this chain the medical and lay mind must be as one. Would that we could arouse the people out of this lethargy.

Mrs. Stevens: I am particularly interested in the fumigating candles spoken of, as to where they may be secured, and how best used.

Dr. Charles: You can obtain them at any drug store, and the directions are on the candle.

Mr. Kingsbury: I would like to hear from the lady if she has had any experience in the treatment of this disease by the outdoor treatment. We hear a great deal about this in the paper, and it seems in many cases to have been effective, and people who have had the disease have taken to living out of doors. breathing only outdoor air, and not going into the house at all excepting for their meals, are getting well. I might perhaps cite my own case as an illustration. When I was thirty-five years of age I had the consumption. The doctor told me that I would have to leave the business I was then engaged in. I was in the book business, and had been very closely confined—was in a close room most of the time. This was the trouble, and the doctor said that I must change. I went down South to a town in North Alabama and went into the mercantile business, and down in that part of the country it is customary to leave the doors open, winter and summer, otherwise the customers would think you were gone if the door was closed, and they would not attempt to open it. Of course my door was open when I was in during business hours, and at night I slept by an open window. In that country the winters are never severe, and so I breathed outdoor air all the time. I recovered my health. As I went down there I was so weak, the consumption had such a hold, I could not walk two squares at a time. When I went through the city of Louisville I wanted to see the place, and attempted to walk about the streets. There were no street cars at that time. I could not walk two squares without sitting down. I had not been there a great while before I was able to walk across the country fifteen miles. To make a long story short I recovered from the disease, and I wanted to give this in testimony for the outdoor treatment. I should like to hear from the doctor on these points.

President Stevens: The doctor has just gone to the train. We will take up the next topic. "How to Market Strawberries for the Top Price."

Mr. H. W. Henry: Mr. Chairman, Ladies and Gentlemen—I think the chairman made a mistake in giving me this subject. I think the subject should have been "How to Entertain the Horticultural Society in a Royal Way."

Mrs. Stevens: We have had an example of that, and do not need a paper on that subject.

Mr. H. W. Henry: That is right, so I will begin with my subject. First I will say, that this subject supposes that you have top strawberries to market; for we suppose that you have the best kinds of strawberries. I suppose you understand your soil, and the conditions of your soil, and know how to get the soil in the proper condition for berries, and also that you understand the habits of the berries; that you understand the different varieties, i. e., how to fertilize the pistillate, and that you understand how to properly cultivate and take care of them during the season. I suppose my subject begins with the bed, and from that on, and I must say right here that I believe more strawberry raisers know how to raise the berries better than they know how to dispose of them. The first thing I will speak of is the getting of the berries off of the vines into the proper vessels, or crates. I use entirely the sixteen-quart crates. We want these crates, or vessels of whatever kind we use, in a nice clean condition, never an old dirty box, to put the strawberries in. Never put the crates in a dirty box. I prefer the sixteen-quart crate for several reasons. They are easier to handle, and more people will take them for family use. They are usually rated at the Chicago market in this way; you will notice that the sixteen-quart crate is always quoted higher in proportion to the number of quarts than the twenty-four quart is. I believe if we had twelve-quart crates we would get higher prices in proportion, because more people can take them home. I am thinking of getting a special crate made that will hold four boxes, and have a handle on it, so that persons can take these and carry them home; it would be easy for the storekeepers to sell these. A great many people use that many berries during the day, and I believe if we sold them this way more people would take them. I believe that the man that puts his berries in the nicest boxes will make the most money. Another point that must be carefully considered is the taking of the berries off of the vines. I never have the berry pulled off, for if you do you will bruise the berry, or will pull the stem out of the berry, and the whole hull will pull off, and then they will not keep by twenty-four hours as long as the berries with the stems still on. I have them pinched off. The first thing I do is to show the pickers how to pinch the berries off. We use four and eight-quart boxes to pick in, according to the swiftness of the picker. It is best to give a new picker a four-quart box. I say to them, "Johnny, I want you to pick these berries on this row just as they come—all good marketable berries, no buttons, soft berries, or bad berries—but just as they come until your box is about a half inch of being full, and I don't want you to put any berry in any other box until this one is full, then get another box and fill that in the same way, and I want you to make your berries look the very best possible." By all means never allow a picker to put the berries from the boxes into the crate. I never do. This is a very bad habit among berry raisers in our neighborhood. They give each fellow his crate and write his name on it, and he fills it and brings it to the packing yard. Sometimes the pickers will put in boxes upside down and put a few berries on top. They ought to do that for a man that will allow his berries picked in that way. You must see every box and know just exactly what is in it, and the condition of the berries when you put them in the crate, and then you will know what you have to sell and what the customers will get. If you don't you will not know what the pickers are doing and what the customers are getting. Berries should have a cool place in which to be kept during the night. Berries should not stand in the sun ten minutes; crates should not stand in the sun either. Leave your boxes sitting in a cool place through the night and don't nail up until the next morning. You will find that they will keep in better condition.

There are three principal ways to market berries. One is to the home market, selling your berries to your neighbors, and selling them around to the people in towns. That is a very good way and a very profitable way, and you can generally get a good price for them in this way. You have to take into consideration that you are using your time to pick and dispose of these berries, but for a man that doesn't raise many berries this is an excellent way. If you will give good satisfaction and your customers good berries you will get along nicely.

The second way is to dispose of your berries to a commission merchant in some large city. This is the easiest way to get rid of berries that I know of. All you have to do is to get them ready for market and take them to the express office, and wait for your returns. The waiting for the returns is the worst part of it, for sometimes you are disappointed in your returns. If all commission merchants were honest and all berry growers were honest there would not be half so much anxiety in waiting for our returns, but there are honest commission merchants and there are dishonest fruit growers, and I believe if there were as many honest fruit growers as there are dishonest commission merchants we would not have so much trouble and would get better prices.

I suppose the greatest market is at Chicago on South Water Street. All kinds of stuff raised by farmers are sent there. It is quite a sight there, and any man in the berry business or vegetable business ought to visit this place and see the conglomeration of stuff sent there for disposal by the commission merchants. It would make a man dishonest if he went there with honest intentions to treat the customers correctly. From twenty to thirty thousand crates of berries came to Chicago in a day from Michigan. If half of these berries were dropped into Lake Michigan the commission merchants would have been better off, the growers better off, and the general trade would have been better off. The trouble is they put everything in that grows on the vines no matter what their condition. If you would see them you would wonder how the commission merchants can be as patient as they are. Less quantities and better berries should be put on the market. They would get a better price then, for the supply would demand it. The quotation of South Water Street this year was from 60 to 90 cents a crate from the 10th of June to the 25th of July. Who can afford to raise berries for 60 cents a crate. It costs you 60 cents for every crate you put on the market; you can't put a crate on for less than 60 I believe. Count this up. Land at $5, preparing land $5, cost of plants $20, tending the plants $20, fertilizing the plants $50, crates at $50, and picking at $75, and that makes it pretty close to $200, and this ought to produce at the least calculation four hundred sixteen-quart crates in a season. That would cost you 60 cents per crate. I believe that the man that can get a dollar or more for his berries is doing well. People can't afford to pay too much for them. If they retail at 10 cents a quart that is almost enough.

The last way is to sell to a groceryman. I believe the groceryman is the proper one to handle strawberries. He furnishes the people with other groceries, and if you can get a good groceryman to handle your berries in large way I believe it is the best way. I sell my berries in Chicago. I went to Chicago and secured my first groceryman for my strawberries. I went over there and tried to find the best grocerymen and told them I was in the berry business and wanted to sell my berries direct to them, and that I would guarantee them much better berries than they could get at South Water Street from any commission merchant, and at this time I secured three grocerymen as customers. I can say today that I have those same three. I sold berries this year from the 28th of May to the 25th of July, every day during that time excepting Sunday. This is always my understanding with these gentlemen, that they are to pay my price, and if the berries or the price don't suit they are not to accept. I am careful about giving fine berries, and I make my price so that they can make a profit, too. I watch the Chicago market and always try to price mine at 10 or 20 cents higher. These grocerymen have a class of customers that want these berries. These grocerymen could buy berries a great deal cheaper on South Water Street, but they would not suit their customers, and they could not sell them. I sold my berries from $1 to $1.50 a crate; I averaged $1.15. I did this when the quotations in Chicago were from 60 to 90 cents. You can't do this unless you make up your mind that you will put nothing but the best goods on the market. I can't keep this trade and use all the berries on the vines. It is cheaper to let the inferior ones go to waste than to put your berries on the market at a reduced rate. It will spoil your trade and you can't hold your customers.

Then my answer to "How to market berries for the top price?" would be "Raise the best berries that can be raised, put them on the market in the best condition that it is possible to put them on; don't put all your berries on the market." You can't dispose of something that is not first-class at a first-class price. If your berries are worth 25 cents you will get it and if they are worth 8 cents you will get it. I'll tell you what I did. One morning this season I took my berries down to sell them at $1.10 a crate, and there was another man in front of the store begging to sell his berries at 75 cents. I told the storekeeper to take them for I could send my berries to Chicago, but he said "I don't want them at any price." He had the nicest ones on top, and soft ones, little ones and all kinds below. I have an instrument here (showing a handhoe) if any man will use it properly he can get the top price for his berries. This, in my estimation, is the best instrument made. I will present this hoe to Amos Garretson, and I hope he will take it home and use it to the best advantage possible.

Amos Garretson: I can't make a speech before an audience, but I will say that I will use this instrument in the strawberry patch. This is a nice hoe and I am much obliged to Mr. Henry for it, but I like a hoe about four inches wider. Mr. President, we have the best strawberry grower in the State with us, Granville Cowing, and I would like to hear from him.

Granville Cowing: I don't know why you should call on me. My son Louis here can tell you more about this than I can.

Amos Garretson: I want my friends all to know that this is Granville Cowing, who is my dear old friend whom I almost worship.

Granville Cowing: I have been growing strawberries for over forty years in my present location here. We always aimed to have the very best strawberries in the market. We always market berries with the stems on them. We tell the pickers to take the stem in their fingers and give it a quick jerk. I have never sold berries for less than 10 cents a quart. Last year we sold twelve thousand quarts in Muncie. They ranged in price from 10 to 20 cents a quart. We have our regular trade. I sell but very few berries, but my son has just planted five acres. I thought this morning as I passed the field that I never saw such a perfect field of strawberries in my life. We like the Warfield, Buback, and the Ridgeway and Dunlap. Well the Dunlap has not been very satisfactory to me, but was more satisfactory this year than ever before. My friend Garretson told me that the Marie did remarkably well for him, but they didn't for me. The ground makes all the difference in the world. I haven't much to say, but if you have any questions I would be glad to answer them.

President Stevens: We would like to hear from our friend Garretson.

Amos Garretson: I haven't much to say. The strawberries that do well on my farm will not do well at all on somebody's else farm, so you can not advise people. I had a fine large crop of berries this year. I always instruct my pickers to put the nicest berries out of sight, putting the ordinary ones on top. If they find an exceptionally nice one I want it hid away. I'll tell you my berries sell themselves, for people know just what they will be. Take care of your ground in the fall so that the berries can grow.

President Stevens: We will have to discontinue this subject and take up the next. I have the pleasure of introducing to you a young man who has had a great deal of experience along this line. He is now running quite an extensive canning factory that he has built up from a small beginning on his mother's stove. He is a sane-minded young man, and writes for some of our best agricultural papers. I refer to Elmer G. Tufts, Aurora, Ind.

THE HOME MARKET FOR STRAWBERRIES—HOW TO BUILD UP AND MAKE PROFITABLE.

ELMER G. TUFTS, AURORA, IND.

The home market is usually the best, and if rightly managed may be built up and in time made the most profitable. Much of the success along this line, the same as all others, will depend, however, upon the grower himself. He must be a business man, employing business methods. He must be honest in all his dealings. He should have a love for the business in which he is engaged, be a close observer and have enthusiasm and energy enough to carry out his determination to success. His motto should be: "Better and finer fruit each year, placed upon the market in an attractive style."

In order to build up a home trade the grower must first study the market and learn the kind of berries it requires and then produce what the people demand. In some markets the larger berries only sell in a small way. No one would attempt to grow a large acreage of fancy berries and undertake to market them here. On the other hand there are customers in some cities with the means to pay the price for extra fancy berries that will leave the producer something besides experience.

Having studied the market and learned what the people desire he should produce the best that can be grown and much of the difficulty of marketing will have been overcome if he gives close attention to the rest of the work. Fine berries carefully put up are always in demand at good prices. The nicer the berries the better the price. The aim should be to secure a reputation for selling the best berries that come to our market and a trade can be secured that will grow each year. It takes time to build up such a reputation and is valuable to any grower, much more so than the few extra dollars we are sometimes tempted to secure by means that never was intended to build up the trade. Let us take care of our reputation and we are guaranteed profitable financial returns. People are always looking for the best that their money will purchase, and if you have superior fruit they will always call for it. If the people's demands do not require that which is the most profitable to the producer he should grow a large amount of what they think they want and a small quantity at first of that which pays best. If put up in an attractive form he will be able in time to create a demand, after which the quantity can be increased each year.

The successful grower for any market must prepare to handle the crop before it ripens as there is no time afterwards, and time is money during the berry season, when the fruit must be handled quickly and at the right time to realize a profit. All crates that will be needed should be made during the winter. They should be made of heavier material than the ordinary shipping crate. If taken care of they will last several seasons. The sectional crates are best for the local market, especially in selling fancy berries. The quarts may be filled fuller without the top berries being mashed, thus adding to their appearance. The sections may be taken apart when on the market, showing each quart and making a finer display, which means more profitable sales. If, however, the common style crate is used they should be made higher and the partitions also higher, which will help to prevent mashing the fruit. All crates should be painted one color and this color continued from year to year. It will make them look neat and new. It will act as a sort of trademark. The painted crates will attract the people's attention and be a good advertisement. No doubt there will be no other grower in that market who will go to the trouble and expense. But it pays and helps to build up the home market. It also prevents some men from selling your berries when he does not handle them, as his customers can see that he does not have the colored crates and they will go where they are —that is if a reputation for fine berries has been built up. All baskets must be ordered early so as to have them on hand when the season commences. Plenty should be bought, as to run short in the busy season always means a loss.

A good roomy packing-shed is indispensable. The size will be determined by the acreage of berries. It should be made so that part, at least, can be closed perfectly tight. Into this part the fruit can be kept during a rainy time, such as much of the past season, and the room closed, the berries keeping much better by thus excluding the dampness. If the berries are perfectly dry it is best to keep them from the air at any time as much as possible, so as to have them retain their color.

In order to be in direct communication with our customers in the local market at any time the packing shed should be connected by telephone. By this means we can watch the picking, grading and packing, thus knowing in what condition our berries are sent to market and at the same time know how the fruit is selling. The phone is a money maker for the strawberry grower and is one of the essentials to the successful building up and making the home market profitable.

The next thing would be to decide definitely, as far as possible, upon the method of disposing of the fruit. It is a good plan, and no doubt is the best and most profitable, for the small grower to sell direct to the consumer. While this plan has its advantages it also has its disadvantages, and I believe is not as practical for the grower of more than an acre as some others. While by selling direct the grower usually realizes the retail price for his fruit, saves part of the expense for the baskets and crates, and the berries ordinarily reach the consumer in better condition.

yet there is a limit to the amount of berries he can sell in this way, and while he is retailing his berries the picking and packing for the next day is no doubt not progressing as rapidly or as well as it should or would if the owner was on the ground, no matter how good a man is left in charge. No doubt the grading is sleighted in the rush, and the next load will not be up to the standard and will cause complaint from the customers and a dissatisfied customer is worse than no customer at all.

I believe the home market can be built up, a trade secured and held, the grower making a greater success and realizing a larger profit by personally overseeing the grading and packing, knowing that this part of the business is properly attended to, delivering the berries to the market in a good condition and there sold by the retailer than if he undertakes to sell direct to the consumer. A reputation is far more valuable if we are making a life work of strawberry growing than the small per cent. charged for selling our fruit.

Arrange with a few grocerymen to handle the berries on commission. They should be sold on a per cent. of the retail price and not by the quart regardless of the selling price. By the former method the retailer will do all he can to help hold up the price as long as possible as his profits will be larger. If the later method is used the lower the price the more quarts he can sell and consequently the greater is his profits, though the grower's will be considerably reduced. The berries should be delivered every morning by the grower, if possible, and the retail price for that day established. Under no circumstances should the retailer be allowed to sell the berries for less without the producer's consent. Here is where the telephone is indispensable. If the price is left with the retailer they will too often try to undersell one another and the price will be cut when there is no necessity, or one will sometimes be selling lower than another. To give the consumer satisfaction and to treat all the retailers right it must be an understood rule that the same grade of berries, at no time, can be bought any cheaper at one store than another. If it becomes necessary from any cause to reduce the price after being made in the morning each retailer should be notified of the change and then there will be no chance for complaint for overcharge. Only arrange with a few grocers at first, so as to be able to supply all the berries they can handle, thus shutting all others from supplying them. Others may be added to the list as the business grows, thus coming nearer each year to supplying the entire market.

By this method the grower first controls the retail price of his fruit regardless of any one or their opinions and is able to keep up the price longer. If he has fine fruit he need not be afraid to set a good price, though the retailer may know it is too high, and drive home, taking up the work there with a contented mind, well knowing that they will be sold ere he returns the next morning with more berries.

Second. The price is always the same anywhere in the market at that time, which greatly helps to build up a trade.

Third. The grower is always more sure of where he can dispose of his load before it leaves the farm, and this is quite an item if he sometimes sends someone else instead of going himself. He also saves much valuable time in distributing the fruit, as he simply leaves each day what he thinks best. When the berries are scarce they should be divided among the various customers in proportion to their respective ability to handle them when the berries are more plentiful and under no circumstance leave more than each one's share.

Fourth. The grower is able to dispose of more fruit in the local market.

If he is a business man, and no other can succeed, and is a close observer he can tell, as well as the grocer at least, how many they will be able to sell that day, and often he will leave many more to be sold than if the retailer bought outright, as the latter would not take the risk of losing. The grower must virtually stand the loss even if he sell outright, for if there is a glut and the retailer loses he will not buy so many the next day and the grower must look elsewhere for a market when everyone is overstocked.

In a time of an oversupply it is best to make a low enough price so that the berries will sell. There would be no profit in shipping the surplus to a distant and uncertain market, for that market do doubt would also be oversupplied. If the fruit is fine and properly put up and left on commission there is little risk of it not selling.

A profitable Saturday afternoon and evening trade can be built up by saving as many of the large berries as possible for this time.. People want something extra for Sunday, and if they are sure of getting them late Saturday evening they will buy them. I have often, in fact nearly always, made three trips to town with berries Saturday, the last load not reaching the market until 8 o'clock.

It is very important to the successful marketing of strawberries that the picking be attended to at the right time and the work be properly done. When possible the picking should be done in the cool of the morning, after the vines are dry, and late in the afternoon. With a large acreage, or when help is scarce, this is not possible, and picking will have to be continued all day. All carelessness should be prevented and the berries picked without being mashed or bruised, and delivered to the packing shed in good condition.

The day is past when we can succeed by placing our fruit upon the market in any but the best condition. If we expect to build up a reputation for always having first-class berries, we must be able to guarantee each quart, which must be put up in an attractive style to satisfy the eyes of our customers. This can not be done unless each quart is carefully graded and the work done by competent persons at the packing shed.

The ordinary pickers can not do this work, as their ideas of the various grades are all different. Each quart of the same grade should be as near alike as possible, and should contain as large if not larger berries at the bottom as those on top. It makes the grower feel better, to say the least, if he should hear a customer say: "These berries are all right. There are finer berries at the bottom than those on top.' The retailer can also use this to an advantage in selling the fruit at a better price. We need not offer our customers a quart of small, mashed or unattractive berries and ask them the same price as one that has been properly grown, carefully picked and graded. It is useless to spend time in growing fine plants, to be careful in setting them out, to spend money in buying commercial fertilizers, to use the best methods of cultivation, producing a large crop of fine berries, and then neglect to spend a little extra time and money in grading and making the berry attractive, and as a consequence selling less and at a lower price, which will greatly decrease the profits.

In supplying the home market I believe the berries should be sorted into four grades—Fancy, Choice, No. 1 and Culls, the last to contain all that are not fit for market. Of course some varieties, if properly grown, would need but little sorting, yet they would be looked over. The fancy grade should contain all large, perfect berries and be maintained at a uniform size and the price held the same, as near as possible, through the entire season. This grade will go to customers that want the best all the time and are perfectly willing to pay for it. By the berries always being the same they will not look elsewhere, but will send in their order to the same place each day. The other two grades can be varied according to the market conditions. If there is a prospect of berries being scarce the next day, more can be made into the choice and less into the No. 1; or if the competitors have nicer berries than the No. 1, then this grade must be made better. The idea is to have the No. 1 as good as those of any competitor, and sell these at a price to compete with them, and have the fancy and choice better, which will bring a higher price.

Each quart must be well filled and the berries on top turned with the stems down. This takes time and costs money, but there is no other work that returns as great a clear profit and does more to build up a trade in the home market.

A neatly printed card giving the grower's name and address and stating where the same kind of berries can be secured each day should be placed in each quart of the two better grades. When the berries are emptied the card falls out and shows that the customer has been sent the berries that were ordered. Thus none can use your reputation for fancy berries to sell their own. Your name will not be seen on an old, stained and blackened basket, long past its usefulness as a strawberry quart, yet is used by some growers to market their berries.

In conclusion, we might sum up the success of building up the home market and making it the most profitable to depend upon:

First. Upon the man himself; his business ability, judgment, honesty, enthusiasm and energy.

Second. Upon the grower thoroughly understanding the demands of the markets, watching their changing conditions during the berry season and personally superintending the grading and packing.

Third. Upon the reputation of the producer always selling extra fine berries, carefully picked and honestly graded.

Fourth. Upon the neatness and attractiveness of the fruit when placed upon the market.

Mr. Ragan: I want to say that I was very much pleased with the presentation of the subject. He certainly seems to be well versed in small fruit growing. I wish to compliment the young man and the Society.

President Stevens: If there is nothing further on this subject we will proceed to the next, "Shall the Blight Remain Unconquered?" by W. B Flick.

Mr. Flick: It is pretty warm in the house and I am almost as warm as when I wrote this paper. I am to introduce this subject, and this is all that I expect to do. I have put down what I expect to say on paper, because I have been pretty plain about this matter, and I hope that those who are here on the other side will defend themselves as well as they can.

SHALL THE BLIGHT REMAIN UNCONQUERED?

W. B. FLICK, LAWRENCE, IND.

The blight has been known for centuries as one of the most dreaded and destructive diseases known to the fruit grower; still, to the discredit of our scientists, it remains unconquered up to the present time.

It is more prevalent and virulent in Indiana this season than it has been known in recent years. It is very destructive. In a few hours the growth and care of years is utterly destroyed. We can do nothing to hinder, but must stand helplessly by while the devastation goes on. Our hopes, expectations and anticipations of the future are in a short time annihilated.

I had on my trial grounds some dwarf pear trees that I had trained with much thought and care. They took kindly to my treatment and grew to be models of health and form. I took pride in them and inspected them almost every day; but, alas! upon making my usual rounds a few days ago, I observed a few leaves here and there that were blackened, and upon closer inspection found that this dread disease had fastened upon them.

To most of them I applied the only known remedy (which is no remedy at all, but only a rather doubtful mode of preventing the spread of the disease), and cut down some that were wholly affected, and maimed and disfigured the remainder for life. No one, unless he has had experience, can enter into my feelings of loss and disappointment.

I felt like crying aloud, "A kingdom for a remedy," but echo answered, "No remedy." We can'at most, assume a masterful inactivity and let the destroyer do his worst work. Under such conditions one's feelings and language are apt to be intemperate. However, we think that we are warranted in asking very earnestly, "What are our experiment stations doing in the direction of finding a remedy for this dread disease? Are they at work on this? If not, why not, and why don't they put some one or ones at work and persistently, courageously and eternally run it down?" Let them stay at it. Don't sit down and content yourself by rehearsing what others have done, but turn up new earth! Keep at it until a preventative or a remedy is known, or at least something definite."

I said that this disease has been known for centuries. Downing says that Duhamel, a French horticulturist, in 1768 noticed and described a disease of the pear tree similar to the blight.

When it first occurred in America I am not informed, but several noted horticulturists have given it some attention here. Downing considers the disease under two heads: First, insect blight; and, second, frozen sap blight. The former, he says, is caused by an insect which he very minutely describes as depositing an egg behind or below the bud. The following spring the egg hatches and a small worm bores into the branch to the center and then makes a circular canal around the pith, cutting off the flow of the ascending sap, which causes the twig to wither and die. His preventative is to cut and burn the affected parts. This is eviedntly what we call twig blight.

The frozen sap blight, he says, is caused by frozen sap, and he explains the action as follows: "In every tree there are two currents of sap —the upward current, which ascends through the outer wood to be digested by the leaves, and the downward, which descends through the inner bark. Anterior to a blight season a very sudden and early winter follows a damp and warm autumn. The summer being dry, the growth is checked prematurely, but the warmth and dampness of fall starts a vigorous growth, and a sudden freeze coming on while the sap vessels are filled with their fluids, the descending sap becomes frozen and thick and clammy, and chokes up the sap vessels. Through succeeding freezes and thaws the saps lose their vitality, becoming dark and discolored. Along the inner bark, at crotches and other cramped places, it lodges and destroys the sap vessels. In the ensuing spring the ascending sap goes up through the inner wood without obstruction, reaches the leaves, is digested and starts downward, when it is arrested by the destroyed sap vessels, where it mixes with the accumulations of the frozen sap, and it becomes diseased and bursts through the bark. The bark becomes shriveled, the leaves turn black, and the limb or tree dies." His remedy is the same as for insect blight.

Since Downing's investigation, several noted horticulturists and scientists have given the subject some consideration, but seemingly without much real progress. In 1844, the Indiana Horticultural Society, being aroused at the extensive ravages of this disease in our State, appointed a committee composed of Henry Ward Beecher, Reuben Ragan and others, whose names I did not get, who were to make investigation of this disease and report at a subsequent meeting. Mr. Beecher was chairman and made the report. He says that in Indiana and Ohio the blight had prevailed to such an extent as to spread dismay among cultivators, destroying entire collections, taking half the trees in large orchards, affecting both young and old trees, whether grafted or seedlings, in soils of every description. Many have seen the labors and fond hopes of years cut off in one season by an invisible destroyer against which none could guard, because in the conflicting opinions none were certain whether the disease was atmospheric, insect or chemical. Much like our situation today. He describes two blights, which he distinguishes as summer blight and winter blight. The former he says affects the leaves in spots; gradually the whole leaf turns russet brown and drops. Along the wood may be seen the hardened trail of a slimy insect of an ash color.

This is evidently what is now known as the work of the pear slug.

The winter blight is the same as Downing names the frozen sap blight.

I will not here attempt to show how Mr. Beecher punctures the theories heretofore ascribed to be the cause of this disease, but will allow you to have the pleasure of reading his full report in the current 1902 report of this Society. He gives as the causes of the blight (the winter blight) the frozen sap theory as described by Downing and he would guard against it by:

First. Planting in a warm, light, rich, dry and early soil.

Second. Select trees which complete their growth early in the season.

Third. Root prune in August or September to prevent late growth.

Fourth. Cut and burn diseased growth.

After Mr. Beecher, not much was accomplished until, through the investigations of Professor Burrill, of the Illinois Experiment Station, the origin of the worst form of this disease was attributed to bacteria which propagate by inoculation. This indeed was a very important discovery, and has thrown much light on the subject of blight and largely cleared the atmosphere of doubt and uncertainty heretofore prevailing. Professor Burrill, like most of his predecessors, seems to have been exhausted here, and sat down to rest, and as far as known remains in statu quo.

Recently Mr. M. B. Waite, of the Division of Vegetable Physiology and Pathology of the U. S. Department of Agriculture, has made (?) a special study of pear blight, and added much to the knowledge of the nature, spread and control of the disease.

Mr. Waite says one of the most remarkable things about the disease is the rapidity with which it spreads through an orchard at blooming time. This peculiarity has thrown much light on the way microbes travel about, which they do quite readily, notwithstanding they are surrounded and held together and to the tree by sticky and gummy substances. They are able to live and multiply in the nectar of the blossoms, whence they are carried away by bees and other insects from blossom to blossom until whole orchards are inoculated. From the blossoms the disease extends downward into the twigs, limbs and trees. Another way in which trees are inoculated is through the tips of growing shoots. This is called twig blight, to distinguish it from blossom blight.

Mr. Waite thus describes the action and progress of the disease:

"The blight begins on the blossoms in early spring; then during the summer we may have twig blight clear into September. The disease runs down on the twigs, and in the majority of cases dies out. The disease works in the bark, and as a rule finds the tree, at some time during the late spring and summer, too dry and tough for it to take hold of, and it dies out. Occasionally, however, infections keep running down on the twigs, get into the fleshy bark and keep on working slowly till fall. After this season of the year the trees are so moist that those germs will not dry out, but will live over winter, resulting in "hold-over" blight. It stands the zeros perfectly. In spring the hold-over cases start off when root pressure begins, and when the tree is full of sap. In this way the disease is perpetuated."

Mr. Waite suggests no new remedies in his treatises as far as I have had time to search.

The California State Board of Horticulture has recently had an agent at work on this disease, who, after thoroughly investigating the matter under all the available knowledge of recent discoveries, comes to the following conclusions:

First. The principal point of entry or inoculation is through the blossoms, and its progress is downward, varying in speed from an inch to several inches daily.

Second. The healthiest trees—those making the most vigorous growth—are the most susceptible to attack.

Third. The disease is common to the whole pomaceous family.

Fourth. The disease is of bacterial origin, due to the presence of a microbe.

Fifth. It is spread by bees and other insects, which carry the microbes from tree to tree.

Sixth. The bacillus dies out when the growth stops and the wood hardens.

Seventh. The most effective preventatives are neglect of the tree and the retarding of its growth.

Eighth. Vigorous cutting out of all diseased wood, well below the point of infection, is the only remedy that can be recommended.

Ninth. Sprays and washes are utterly ineffective and useless as remedies.

While here is some valuable information and some good suggestions, I can not see anything especially new. Seems to be the same old track pursued to the handy place to take an inclined position and rest. Could there not be some investigation and trial of some system of quarantine which would confine the disease? If a "drying-out process" is fatal to the germs, how about some chemical compound to be applied as a remedy?

I think that as growers of food of the healthiest and of the most nourishing kind for mankind, as citizens having capital invested, we should urge upon our government to inaugurate some system of procedure by and through which an effectual remedy may be worked out for the extermination of this disease.

There seems to have been some commendable work done in this line, but we are dissatisfied at the seeming spasmodic way it has been managed. Let some parties be put at it and let them stick to it until the disease is conquered.

Mr. Apple: This paper shows a great deal of thought. It was an excellent paper. I don't know whether there is any remedy for this thing we call blight. If there is it seems to me that American citizens are wise enough to have found it out. We do not know fully the cause of this disase, and no physician can treat a disease successfully without knowing what it is, and until we find this out we will be at a loss to know how to kill blight.

Mr. De Vilbiss: Early last year my trees were blighted very much. I advertised in the paper for ten boys, and I took them and went to the orchard and began war on the blight. We took everything clean as we went. I instructed the boys like this: "Boys, be sure that you cut beyond the blight, even though you cut the limb clear off." We kept this up until we had cut off every bit of blight, and the result is that this year we haven't the blight. We did not disinfect our knives, for we did not cut the blight, but cut below it. Take this for what it is worth, but it was all right for me.

Mr. Kingsbury: Mr. Apple spoke of no one knowing the cause of blight. Professor Burrill of the Illinois University discovered that it was a bacillus. But when he discovered this I supposed he would go ahead and tell us what would destroy it, but he has not; so I suppose he thinks he has done his part and will leave that for the rest to do. I shall always blame him for this, since having found the little pest he should have found some kind of poison that would reach him and kill him. I suppose, however, that he is so very small that he gets in out of reach of a liquid, and I suppose the only way we can get rid of it is to cut the diseased limb off. This will rid us of it this year, but next year we will have it again.

Mr. Hobbs: I think that it has been clearly proven that this is a bacterial disease. If you put this disease in the circulation of a tree, in eight or nine days the disease will be found in that tree. Of course, this cutting back process is all right if all the neighbors will do the same thing, but if they don't you will be exposed again. To get rid of this on some trees we would have to cut them down, and we don't like to do this. I would like to ask Mr. Ragan if the U. S. Government has persons at work on this. Do they keep them at it?

Mr. Ragan: I say "Yes"; but I am not familiar with what has been done. I know that this has been under investigation for several years. The credit is due to Dr. Burrill of Illinois for discovering the trouble and cause of blight. By the way, the first publication of this subject was published by this Society. It was published in 1891, which was the first publication of his theory. Dr. Arthur was also investigating this question. Perhaps Mr. De Vilbiss will not be so enthusiastic another year; at any rate, all he has said was well known before he was born. In regard to the frozen sap theory, my father was the originator of that theory. In the early 70's this Society offered a prize of $25 or $50 for the best essay on the causes, prevention and remedy for blight. I didn't have much to say on the subject, but I remember that I assumed that we knew very little about it, and that a much better paper could be written on what we did not know, and to my surprise I was awarded the prize. Most everything blights, but you will almost have to except the Keifer pear.

Mr. De Vilbiss: Forty-one years ago Mr. Rotter, near Ft. Wayne, moved on his farm and planted trees of the Flemish Beauty kind in the yard. The trees blighted. I have been to see them four or five times. These trees were cut down almost to the ground—cut to an entire stump—but since that time these trees have borne twenty-eight successful crops of pears and have not shown a symptom of blight to last year, and I have not visited them since. This tree was cut down below the forks.

Mr. Snodgrass: I am afraid we will not get rid of this disease until we legislate against it. There is no use for one man to fight it and his neighbor let it go. I don't believe in cutting a tree to the stump. I would rather cut it entirely down.

President Stevens: This completes our program, and the time has come for adjournment. I want to thank all for their help in making this one of our best summer meetings. The next meeting of this Society will be in Indianapolis in December, at which time some of the most experienced and ablest horticulturists of the United States will be present to discuss topics in which you are all interested, and I hope we will have as good an attendance at that meeting as we have had at this. The meeting now stands adjourned.

PROCEEDINGS

OF THE

Indiana Horticultural Society.

WINTER MEETING AT INDIANAPOLIS,

DECEMBER 2 AND 3,

1903.

FIRST SESSION, WEDNESDAY, DEC. 2, 1:30 P. M.

The Indiana Horticultural Society met at Room 12, State House. President Stevens called the meeting to order at 1:30 o'clock p. m., and introduced Mr. John W. Apple, of Oaklandon, who gave the invocation. The President then called Mr. H. H. Swaim, of South Bend, who is the First Vice-President, to the chair while he delivered his annual address.

Members of the State Horticultural Society:

Indiana's State Horticultural Society is once more convened in annual session. We congratulate you upon the efficiency of the work you have done in the past, as well as for the bright prospects which lie before you for future usefulness.

The main purpose of a Horticultural Society is to spread information. The State recognizes you as an educating factor for a certain class of her citizens, and gives you pecuniary aid. So we come together, not so much for personal advantages that may accrue to any of us, but rather to help along the great fruit industry all over the State.

Members are expected to come to these meetings prepared to give from their experience, experiments and investigations something that will be of benefit to the public. The State very kindly steps in again and bears the expense of publishing our proceedings for distribution among interested parties who are unable to attend these meetings, and thus all are benefited who care to interest themselves in any branch of horticultural work. We not only get the best information obtainable from members of the Society, but the ablest experts from all parts of the country are called in to consult and advise, instruct and enthuse us, and thus we keep in touch with pioneers in advanced work and abreast in horticultural advancement.

Here we have no time to spend listening to anyone's pet theory, but want facts, figures and demonstrations. We want to know from time to time what has been accomplished by practicing the very best methods all along the line, then we can select and adopt that which is adapted to our individual efforts along special lines of work.

As a collective body there are many important matters that this Society should consider. First and foremost, ways and means should be devised to extend the general fruit industry of the State. Indiana should be right up in the front rank as a producer and exporter of fine fruits. She has a soil and climate that are unexcelled for many branches of the industry. Good markets are within easy reach. But the fact stares us in the face that many thousands of dollars worth of fruits are brought into our domain every year—we are not producing enough for home consumption.

Possessing the natural advantages that we do, why this failure to provide for our own wants? Why are not the hundreds and thousands of acres of fine fruit lands within our borders, which are now given over to poor-paying agricultural pursuits made more valuable and profitable by devoting them to the cultivation of fruits and vegetables? The only answer we can give to this problem is the lack of information along horticultural lines—or in other words, we are short on our supply of practical, enthusiastic horticulturists.

While other States round about us have industriously exploited their advantages to the world—have reached out and brought in men and means to push along the industry, we have allowed ability, energy and experience to pass us by without even extending to them an invitation to stop off and see us, much less to urge them to come among us and help develop our resources. Let us begin now and see if something can't be done to redeem lost advantages. It seems to me that a golden opportunity is presented for us to inaugurate this good work. The greatest fair the world has ever seen is near at hand, both as to time and place. The State has appropriated $5,000 for the purpose of installing an exhibit of horticultural products. Circumstances have been such that these funds have come into the hands of this Society for expenditure where they will do most good. In view of this fact we owe it to ourselves, as well as the great State of Indiana, that we prove worthy of this trust, and so supervise the work that practical benefits may accrue to those who are furnishing this means—the taxpayers of our commonwealth.

I would suggest that in addition to making as fine a display of our products as is in our power with the means provided, that we do something to advertise to the world what we have done and can do along horticultural lines, and invite all who are hunting new locations and opportunities to better their conditions and surroundings to locate among us and avail themselves of the advantages we offer in the way of cheap lands and superior advantages. A reasonable part of the State's funds can not be expended to better advantage than to prepare an extensive monograph setting forth the natural adaptability of our soil for fruit production, together with facts showing what has been accomplished by our best growers, as well as probabilities and possibilities of future development.

The last Legislature gave us an increased annual allowance for carrying on the work this Society is engaged in, and I feel sure that this amount will be increased from time to time as we need it and prove worthy of the trust. Indiana has never been niggardly in the appropriation of funds to push along any of her agricultural institutions.

This Society has successfully inaugurated the enterprise of developing the apple, which is no doubt the most important branch of horticulture in this State. We have a farm of twenty acres, neatly fenced, that is being devoted to the apple industry, the main object being the development of new varieties of fruit. Better fruit is always a laudable ambition with the intelligent fruit grower. Now, if this enterprise is not being pushed forward as rapidly as it should be, I would suggest that steps be taken to put more means and labor into it, and that there be a board of advising directors appointed to visit the farm at stated intervals, to assist in planning the work and making it more effective, and that they report annually to this Society, together with the manager of the farm, what has been accomplished.

The apple can not receive too much attention at our hands. Quite a large area of our State is especially adapted to its cultivation in a commercial way. The outlook for the scientific orchardist was never better, for no first-class fruit is to be found any more in the neglected orchard, and the price of good apples varies very little from year to year. The young fruit grower need not be afraid to set out an apple orchard if he is ready to study the conditions of success and to do the work needed to carry them out.

This Society should adopt a standard bushel box for packing and handling apples. This sort of package has come to stay, notwithstanding the fact that commission merchants do not favor it. It seems to be in special demand among consumers and those who cater to the retail trade. It is especially adapted to handling the best grade of fruit. Hardly any two States have boxes of the same dimensions. The standard apple box is intended to contain fifty pounds of fruit, or about the same as the Winchester bushel. In view of the fact that the bushel box is growing in favor, its dimensions should be agreed upon by this Society, and the next

Legislature should be asked to make it a legal measure. The most convenient size and the one that seems to be in highest favor is the box 9 inches deep, 12 inches wide and 20 inches long. These dimensions are easy to remember, and contain 2,160 cubic inches, just a few more cubic inches than the standard bushel measure.

I present these few suggestions of a practical nature for your consideration and action. The range of subjects which properly come before a horticultural society is a very wide one. Everything which relates to the garden, the orchard the vineyard and the forest comes within our view. All of the arts of embellishment which apply to the home, the park, the street or the roadside should get encouragement from us. All private lawns, all public grounds and all school grounds should be the more beautiful for the existence of horticultural societies. Horticulturists can give no more important service to society than that which is done to beautify the homes, and thus sweeten the lives of the people. Thus the daily life and practice and teaching of every horticulturist is a perpetual exhortation to his neighbors. It is fortunate that the arts of rural beauty win their own way easily with people of all classes who are striving to make homes out of households. These same influences of trees and grass and flowers make their own appeal to almost every nature.

But when we come to the practical side of horticulture, in which most all present are interested—the propagation of trees and plants, practical fruit growing, with its questions of handling and marketing, we enter a field full of diverse opinions, full of unanswered questions, of disputed theories, of unsettled methods. It is to bring harmony, so far as may be, out of this chaos of conflicting views, and to shed as much light as we can borrow from scientific research upon the darkness and ignorance which invest so many of these things, that the main labor of horticultural societies must tend.

The program which outlines the labors of this meeting embraces a varied list of topics that are of general interest, and the success of the meeting now rests with you.

Mr. Swaim: What disposal do you wish to make of this address? It is now open for discussion.

Prof. Troop: I move you that this address be referred to a committee.

The motion was seconded and carried.

President Stevens: I will appoint Walter S. Ratliff, J. C. Grossman and Mr. Stout on that committee. The next will be the report of the Secretary.

Secretary Flick: Mr. Chairman, Ladies and Gentlemen—I have the honor of making the following report:

SECRETARY'S FINANCIAL REPORT.

Receipts for the year ending October 31, 1903—	
Received from members as dues	$95 00
Received from treasurer, cash on warrants	19 25
Total receipts	$114 25
Expenditures—	
Paid for plates—rental for annual fruit exhibit	$4 03
Paid for postage	34 22
Paid for printing, stationery and postals	63 40
Paid for expressage	10 60
Paid for cleaning and dusting books, arranging and cataloguing library	2 00
Total	$114 25
In account with the Treasurer—	
Amount on hand, October 31, 1902	$31 43
Received from the State	1,000 00
Received from the secretary, membership fees	43 50
Received from the secretary, membership fees	95 00
Received from the secretary, insurance	50 00
Total	$1,219 93
Expenditures—	
Paid out on warrants	$1,190 87
Balance on hand	$29 06

Respectfully submitted,
W. B. FLICK, Secretary.

President Stevens: What will you do with this report?

Mr. Stout: I move that the report be referred to the Auditing Committee.

The motion was seconded and carried.

President Stevens: We will now have the report of the Treasurer.

TREASURER'S REPORT.

Officers and Members:

Your Treasurer begs leave to make the following financial report of receipts and expenditures for the fiscal year ending Octorber 31, 1903, to wit:

Receipts—	
October 31, 1902, balance on hand	$31 43
November 1, 1902, received from State	1,000 00
December 12, 1902, received form Secretary Flick	43 50
December 12, 1902, received from Secretary Flick	50 00
October 31, 1903, received from Secretary Flick	95 00
Total receipts	$1,219 93
Expenditures—	
October 31, 1903, paid as per vouchers herewith	$1,190 87
Balance on hand	$29 06

Respectfully submitted,

SYLVESTER JOHNSON, Treasurer.

President Stevens: What will we do with this report?

Mr. Stout: I move you that it be referred to the Auditing Committee.

The motion was seconded and carried.

President Stevens: That committee will consist of Messrs. Stout, Custer and Swain.

The next is the report of the State Entomologist, Prof. James Troop, of Lafayette, Indiana.

REPORT OF THE STATE ENTOMOLOGIST.

Prof. Troop: Mr. President, Ladies and Gentlemen—

The work of this office during the past year has been confined principally to the inspection of nurseries, although the calls for assistance in other directions have been many; and the correspondence concerning insect-infected orchards and field crops, has been far in excess of other years. As far as possible I have responded, either in person or by my assistant, to the many requests for personal inspections of orchards which were thought to be infested with the San Jose Scale. Many more of these inspections could have been made, very profitably so, too, had the appropriation at my command been sufficient to warrant it. As it is the funds at my disposal are little more than enough to enable me to complete the nursery inspection. There are two things which we are trying to accomplish with the limited means at our disposal: (1) To inspect all nurseries in the State and, if possible, keep them free from dangerously injurious insects and plant diseases; and (2) To prevent the further introduction and spread of these pests of the nurserymen and orchardist, as well as those affecting the general farmer. The first is perhaps the most important; as without a clean bill, the nurseryman can not do business in this or any other State; for that reason the nursery inspection has been given the preference, not forgetting, however, to keep an eye on shipments from other States. Our law requires that whenever any nursery stock is shipped into this State from another State, each package or car, if in car lots, shall be accompanied by a certificate signed by a State or Government Inspector, showing that the contents have been examined by him, and that to the best of his knowledge and belief such stock is free from San Jose Scale, and other destructive insects or fungus enemies. In several instances during the past year, my attention has been called to the fact that packages have been received by freight or express agents, which were not duly labeled, and such packages were ordered held until the owners could be notified and certificates supplied or the packages returned. However, in most cases, these apparent violations of the law have been due to neglect or ignorance of the law on the part of the agents, rather than to wilful violation.

Laws in Other States.

Some of our nurserymen have been greatly annoyed and hindered in their shipments to other States by the, seemingly, unnecessary amount of red tape which has been woven into the laws of some of the States. For example—duplicate certificates are required for filing in the States of Alabama, Georgia, Maryland, Michigan, North Carolina, Virginia and Wisconsin, and these duplicate certificates, in some of the States at least, must contain the original signature of the inspector, not a certified copy of it. Not only this, but the official tag of the State Board of Entomology must accompany each shipment. In Montana all stock shipped into the State will be unpacked, inspected and fumigated at designated quarantine stations before it can be delivered.

In Virginia it is unlawful for any person to sell or deliver any nursery stock, unless he shall first procure a certificate of registration, which will cost him $20, and no nursery stock is allowed to come into the State unless it contains an official tag which the nurseryman must have previously purchased from the official in charge. With such a multiplicity of laws and "provisions" to be observed, certainly the path of the nurseryman who attempts to follow them all is anything but pleasant. *Our* law is simple, plain, easily observed, and, I believe, as effectual as that of any other State. I believe, too, that it will stand the tests of the courts much better than some of those already mentioned. We prefer to believe that most nurserymen, at any rate, are honest, and that it is quite unnecessary to give out the impression that they are not by hedging them about by so many laws.

UNIFORM LAWS.

Right here let me say that I believe that one of our greatest needs today, so far as our American fruit interests are concerned, is national legislation looking to the enactment of uniform inspection laws; and these laws should apply not only to imports but to exports as well. At the annual meeting of the American Apple Growers' Congress, recently held in St. Louis, the statement was made by a New York exporter of American fruits, that during the past year a number of shipments of apples were rejected in the European markets because they were covered with San Jose Scale. If that be true, is it any wonder that Germany is trying to exclude American apples as well as American meat? A uniform system of inspection before shipments are made would very largely obviate this difficulty.

SCALE INFESTED LOCALITIES.

Last year I reported the San Jose scale as having been found in twenty-five counties. To this list is now to be added Allen, Bartholomew, Grant, Johnson, Kosciusko, Marshall and Pulaski, making thirty-two in all to date. Besides these just mentioned, we have found eighteen new localities where the scale has not been known before. In some instances quite large orchards are infested, but in most cases the damage done is only slight as yet. My assistant (Mr. J. C. Marquis) reported that he found the conditions in Switzerland county not so favorable as he could wish; and in Jefferson county, near Madison, there seems to have been a letting up on the spray pumps, as one or two orchards which, a year ago, seemed to be practically free from the scale were found to be well covered again. Orchardists should remember that they are in this fight to stay, and nothing short of eternal vigilance will win. About the same condition exists in and around Evansville as was reported a year ago, except that the scale seems to be spreading to new localities. During the summer my assistant visited the Southern Insane Hospital at Evansville and found most of the trees and shrubbery on the grounds well infested with the scale. Vigorous measures were at once applied by the Superintendent, with good results.

Mr. A. H. Goehler of Wabash County, quite recently, sent me specimens of the San Jose scale which he found on trees and shrubbery in several lots in the city of Marion while delivering some nursery stock. I have not yet had time to investigate this point, so am unable to say just how much territory is covered by it. During last August I was called to Johnson County to investigate an orchard some five miles east of Greenwood, and found a well-developed case of San Jose scale on plum and pear trees which had been planted some five or six years, and were undoubtedly infested when the trees came from an eastern nursery. Most of these infested trees were destroyed, and by so doing a fine young orchard near by will undoubtedly escape the same fate.

While on his way home from the summer meeting of the Indiana Horticultural Society, last August, Mr. H. H. Swaim, Assistant Inspector for the northern end of the State, stopped at Fort Wayne and made some investigations which resulted in finding several badly infested cases of the scale inside the city limits. This was an important find, as there are a number of quite large orchards and small fruit plantations in the immediate vicinity, and this discovery will enable the owners to take the proper precautions to prevent its further spread.

A number of other more or less isolated cases have been found, and, I am glad to report, that in every case the owners have been found to be not only willing, but anxious to apply the remedies prescribed, which is a very healthy indication. However, the more I investigate this matter the more I am convinced that we are in for a long siege with this pest. Newly infested localities are constantly coming to light, and the old ones are very slow in surrendering the advantages already gained. Yet if every man owning any considerable number of acres of orchard would provide himself with a good spray pump and the other necessary appliances and then use them intelligently, both winter and summer, the problem would be comparatively easy. Our experiment stations and others have worked out successful remedies and have given the proper methods of application, information concerning which may be had for the asking. The office of the State Entomologist is intended to be a bureau of information on matters of this kind, and under present conditions, in our own State, we can do little more than to advise as to the proper methods to pursue. It then becomes an individual matter. The fruit growers themselves must furnish the materials and power to do the work.

CONCERNING OTHER SPECIES OF INSECTS.

No serious outbreaks of other injurious species have been reported to me during the year. The Hessian Fly, which threatened to destroy the wheat crop of 1903, did not materialize last spring so as to do serious damage excepting in certain localities. A large part of this exemption was doubtless due to the work of the Hessian Fly parasite. The chinch bug was reported from a few localities only. The excessive rains during the early part of summer doubtless did much towards destroying the winter broods, and it is a well known fact that the chinch bug can not stand much wet weather.

The canker worm was also reported as doing some injury in a few localities, but a few timely applications of Paris green was all that was necessary. The corn-root worm, strange as it may seem, was also reported from a few localities. It seems that there are still a few farmers who can learn a lesson only by experience. The fact that this insect feeds only upon the corn plant has been made known by the experiment stations, farmers' institutes, newspapers and others for the past twenty years, and yet there are some who will persist in raising corn after corn until this insect compels them to change their methods of cropping.

NURSERY INSPECTION.

During the inspection period, which extends from June 1st to Oct. 1st, we have inspected 152 nurseries. These are scattered over sixty-three counties, extending from the Ohio river to the Michigan line, and they cover all the way from a half acre up to over 300 acres in extent. All have been granted certificates. One has gone out of business on account of too close proximity to the San Jose scale, and ten have quit for other reasons, and three have started in this year.

FINANCIAL STATEMENT FOR THE YEAR ENDING OCTOBER 31, 1903.

Receipts—	
Amount received from State Treasurer on vouchers submitted to State Auditor	$999 73
Expenditures—	
Traveling expenses, including hotel bills and livery hire	$238 77
Postage, express and telegrams	20 56
Stationery and printing	64 15
Per diem of self and assistants	676 25
Total expenditures	$999 73

I also append a list of Indiana nurserymen, whose premises were inspected in 1903, together with postoffice address, and the location of nursery and amount of stock under cultivation.

Respectfully submitted

J. TROOP,

State Entomologist.

LIST OF INDIANA NURSERYMEN INSPECTED IN 1903, WITH NAME AND POSTOFFICE ADDRESS, TOGETHER WITH AMOUNT OF STOCK UNDER CULTIVATION.

Adams, Ira E., Linton, Greene County. Location, one and one-half miles north of city. Peach only.

Albertson & Hobbs, Bridgeport, Marion County. Location, one-half mile west of Bridgeport. Three hundred acres in nursery stock.

Alexander, J. B., Hartford City, Blackford County. Location, southwest part of city. Dealer.

Alstott & Son, J. M., Sunshine, Harrison County. Location, one and one-half miles southeast. Four acres.

Back & Son, Henry, Witt, Dearborn County. Twenty-eight acres nursery stock, five acres small fruits.

Bell, E. H., Richmond, Wayne County. Location, one mile east, five acres.

Baldwin, T. A., Oxford, Benton County. Mostly small fruits.

Bennett, W. C., Scotland, Greene County. Location, four miles south of Koleen. One hundred acres in trees, two acres in small fruits.

Bennett, A. S., Lafayette, Tippecanoe County. Location, near city limits, southeast. Twenty acres.

Bennett, W. S., Paxton, Sullivan County. Seven acres nursery stock.

Bennett, S. D., Koleen, Greene County. Location, two and one-half miles southwest. Two acres nursery and one acre small fruits.

Best, John M., Kingman, Fountain County. Small stock.

Bird & Son, John, Raysville, Henry County. Location, north side of town. Railroad station, Knightstown. Ten acres nursery.

Bowman, M. M., Wall, Jay County. Small fruits.

Bradley, C. P., South Bend, St. Joseph County. Location, three and one-half miles southeast. Twelve acres small fruits. Dealer.

Bremen Nursery Co., Bremen, Marshall County. Location, just outside of town. Eight acres fruit, shade and ornamentals.

Bridges, John M., Dugger, Sullivan County. Location, one mile east and two miles south of Bloomfield. Fifty acres in nursery.

Broshears, Porter, Boonville, Warrick County. Location, one-half mile south. Five acres.

Brown, Walter, Connersville, Fayette County. Location, near town. Five acres in catalpas.

Browne, Mercer, Spiceland, Henry County. Location, one mile south of Spiceland and one mile north of Dunreith. Ten acres in nursery and five in small fruits.

Brownstown Nursery Co., Brownstown, Jackson County. Four acres.

Bundy, W. P., Dunreith, Henry County. Location, one-fourth mile north of town. Twenty acres nursery, two acres small fruits.

Burch, James M., Stanford, Monroe County. Two and one-half acres.

Burge, Warren, Retreat, Jackson County. Two miles north of Cruthersville. Small stock.

Burkhart & Son, H. A., Southport, Marion County. Location, three miles south of Indianapolis. Three acres nursery and fifteen acres small fruits.

Burns City and Pleasant Valley Nursery, Burns City, Martin County.

Card & Webber, Greenfield, Hancock County. Small stock.

Cathcart, Alva Y., Bristol, Elkhart County. Location, near town. Ten acres in small fruits. Dealer.

Caylor, John, Ridgeville, Randolph County. Location, eastern limits of city. Five acres tree fruits and shade trees.

Cochran, L. B., Greensburg, Decatur County. Location, north side of town. Five acres trees, one and one-half acres small fruits.

Cockrum & Son, W. M., Oakland City, Gibson County. Location, near city. Two acres nursery stock.

Cook, J. L., Warsaw, Kosciusko County. Seven acres small fruits.

Cosby, L. C., Washington, Daviess County. Location, two miles southeast. Five acres stock.

Cunningham & Son, J. H., Sugar Branch, Switzerland County. Ten acres of stock.

Dean, Hiram P., Greenwood, Johnson County. Location, adjoining town. Ten acres in nursery.

Dickey, J. W. & Co., Doans, Greene County. Location, near town. Ten acres in nursery stock.

Dixon, C. S., Bloomfield, Greene County. Location, one mile south of town. Two and one-half acres small fruits.

Dreyer, J. F., Frankfort, Clinton County. Location, in suburbs. Four acres, mostly small fruits.

Eickhoff, Ed. A., Gallaudet, Marion County. Location, six miles southeast of Indianapolis. Four acres nursery, three acres small fruits.

Eickhoff, H. C., Julietta, Marion County. Location, four miles southeast of Indianapolis. Ten acres.

Engler, O., Walton, Cass County. Location, near town. Small fruits. Dealer.

Fullhart & Co., Willard, R. F. D. No. 3, Muncie, Delaware County. Location, four and one-half miles southeast. Eight acres in trees and four acres in small fruits.

Furnas & Co., T., Chalmers, Sheridan, Hamilton County. Five acres, seeds and ornamentals.

Gaar, W. H., Germantown, Wayne County. Location, residence in town, nursery one and one-half miles southeast. Five acres in nursery and three in small fruits.

Garber, D. M., Pierceton, R. R. No. 1, Kosciusko County. Small fruits.

Goehler, Albert, Urbana, Wabash County. Location, three miles north. Three acres nursery stock.

Garrett, E. B., Burns City, Martin County, on S. I. R. R. Location, near town. Ten acres in nursery stock.

Goss, John, Rockville, Parke County. Small stock.

Graham, Charles F., New Albany, Floyd County. Location, two and one-half miles northeast of city. Three acres in nursery.

Graham, J. K., New Albany, Floyd County. Location, resides in city; nursery, three miles north. Two acres in nursery.

Gregg, Warren C., Pennville, Jay County. Location, one-half mile northeast. Eight acres trees and four acres small fruits.

Grossman, J. C., Wolcottville, Lagrange County. Location, three miles northwest. Two acres small fruits. Dealer.

Gustin, E. R., Peru, Miami County. Dealer.

Haines, Joseph, Lake, Spencer County.

Haines, Thos., Lake, Spencer County.

Hand, H. M., Argos, Marshall County. Location, three miles northwest. One acre small fruits.

Harnish, George, Bluffton, Wells County. Location of nursery, five miles northwest. Resides in town. One and one-half acres nursery, fifty-five acres orchard.

Havelin, Alva, Attica, Fountain County. Dealer and small fruits.

Hazen, Smith, Hatfield, Spencer County. Location, one mile south. Four acres in nursery stock.

Heacock, E. E., Salem, Washington County. Location, four miles northwest of town. One acre in trees.

Heacock, J. W., Canton, Washington County. Location, one-fourth mile north of Canton. One-half acre in nursery.

Heim, Alwin L., Brownville, Warrick County. Location, five miles west. Six acres in nursery stock.

Henby & Son, J. K., Greenfield, Hancock County. Location, one mile west. Fifty acres in nursery, fifteen acres in small fruits.

Henry, H. W., Laporte, Laporte County. Location, one mile northwest of Laporte. Twenty-seven acres of small fruits and five acres of fruit and ornamental trees.

Hill & Co., E. G., Richmond, Wayne County. Location, one-half mile east. Florists. Two acres in plants and twenty greenhouses.

Hoagland, George T., Portland, Jay County. Location, five miles north of Redkey. Seven acres small fruits. Dealer.

Holland, William, Plymouth, Marshall County. Location, two and one-half miles southwest. Twenty acres trees, one acre small fruits.

Hook, L. C., Albany, Delaware County. Small stock.

Hoppes, John H., Redkey, Jay County. Small fruits.

Hughel & Co., Anderson, Madison County. Location, one mile east. Ten acres in trees and five acres small fruits.

Irvin, William A., Vincennes, Knox County. Ten acres small fruits and trees.

Jarrett, J. A., Montpelier, Blackford County. Location, three miles northwest. Five acres fruit and shade.

Jeffries, E. T., Boonville, Warrick County. Location, five miles southwest. Three acres.

Kelly, Samuel, Alert, Decatur County. Location, north end of town. Four acres.

Kepler, S. W., Pulaski, Pulaski County. Location, five miles southwest of Pulaski. Three acres.

King, W. D., Scotland, Greene County. Location, five miles south of Koleen. Five acres nursery stock.

Knaub, Ben, North Vernon, Jennings County. Location, five and one-half miles northeast. One acre.

Korner, Joseph, Star City, Pulaski County. Location, two and one-half miles west of town. Four acres small fruits. Dealer.

Kuebler, Theodore D., Armstrong, Vanderburgh County. Five acres nursery stock.

La Hane, William, Chesterton, Porter County. Location, suburbs of the town. Five acres small fruits. Dealer.

Lucas, John W., Bloomfield, Greene County. Location, four miles east of town. Six acres trees, one acre raspberries.

Lutes, O., Portland, Jay County. Small stock.

McClaren, Charles, Sunshine, Harrison County. Location, one-fourth mile southwest. Four acres.

McCoy, J. E., Bourbon, Marshall County. Location, one-half mile south. One acre apples and pears, ten acres small fruits. Dealer.

McElldery, W. E., Boonville, Warrick County. Location, in town and one-half mile south. Six acres in nursery.

McGinnis, D. A., R. F. D. No. 1, Andrews, Huntington County. Location, ten miles south and two west of Andrews. Small fruits.

McHolland, W. S., Koleen, Greene County.

McIntosh, George W., Rego, Orange County. Location, one-half mile southwest. One-half acre.

Martindale & Hostetter, Doans, Greene County. Location, near town. Twelve acres in nursery stock.

Mason, B. F., Martinsville, Morgan County. Location, seven miles south. Two acres.

Mason, V. E., ten acres of stock near Martinsville, Ind.

Melton, J. F., Amboy, Miami County. Location, in town. Two acres small fruits. Dealer.

Meeker, H. H., Crown Point, Lake County.

Meredith & Son, Koleen, Greene County. Location, two and one-half miles southeast. Forty acres in nursery stock, one acre small fruits.

Miller, Thad, Tulip, Greene County. Small stock.

Milhouse, Jesse G., Ezra, Jennings County. Location, four and one-half miles southeast of Butlerville. Two acres.

Milhouse, Frank, Hyde, Jennings County. Location, five miles southeast of Butlerville and one and one-half miles east of Hyde. Three acres nursery.

Mills, Grant, Portland. Small fruits.

Minnick, Henry, Converse, Miami County. Location, three and one-half miles northeast. Three acres apples, cherries and pears.

Moffit, Frank, Carmel, Hamilton County. Two and one-half miles southeast. Small fruits.

Moon, H. E., Portland, Jay County. Small stock.

Moore, C. B., Monticello, White County. Location, two miles west of Monticello. Two acres.

Morris, Thomas M., Clinton, Vermillion County. Small stock. Dealer.

Moyer, G. N., Laketon, Wabash County. Location, one and one-half miles south. Forty-five acres nursery stock, thirty acres of fruit.

Morrison, O. A. J., Middle Fork, Clinton County. Location, six miles south of Michigantown. Carolina poplars. Dealer.

Overman, J. C., Raysville. One-half mile east. Small stock.

Patterson, P. T., Bloomfield, Greene County. Location, one mile south of town. Two acres in trees and three in small fruits.

Paxson & Son, George, Pennville, Jay County. Location, three miles northwest. Two acres tree fruits, one-half acre small fruits.

Peffly, T. J., Dora, Wabash County. Twenty acres small fruits and sixty acres in orchard.

Pennington, C. C., North Vernon, Jennings County. Two acres, mostly small fruits.

Perry, Alex, McCutcheonville, Vanderburgh County. Small stock.

Phelps, William, Noblesville, Hamilton County. Location, two miles southeast. Five acres trees, ten acres small fruits.

Phillips Bros., Hobbieville, Greene County. Location, one-half mile north. Twenty-eight acres in tree fruits.

Potter, E., Redkey, Jay County. Location, five and one-half miles north. Two acres small fruits.

Preble, A. C., Marion, Grant County. Location, 303 N. Boots street. One acre in nursery stock. Dealer.

Ragle, Amos & Son, Elnora, Daviess County. Location, south side of Elnora. Twenty-five acres trees, four acres small fruits.

Randolph Bros., Lafayette, Tippecanoe County. Location, three miles southeast. Fifty acres.

Reed Nursery Co., Harrell, Jefferson County. Location, two and one-half miles southeast of Harrell. Five acres in nursery.

Reed, W. C., Vincennes, Knox County. Location, two miles southeast. One hundred and fifty acres nursery stock. Twenty-five acres small fruits.

Rogers, Hugh, Knox, Starke County. Location, one mile south. Three acres small fruits. Dealer.

Rogers, R. S., Bloomfield, Greene County. Location, two miles northwest of town. Three acres small fruits.

Roth, Daniel, Boonville, Warrick County. Small stock.

Scott, Charles H., Winamac, Pulaski County. Location, one and one-half miles southeast of town. One acre trees, fruits and ornamentals.

Sanders, Mrs. Jane, Westville, Hamilton County. Small stock.

Semon, H. C., Bennville, Jennings County. Location, one and one-half miles east in Ripley County. One and one-half acres stock.

Sharp, G. H., Linton, Greene County. Small stock.

Simpson & Sons, H. M., Vincennes, Knox County. Location, two miles east. Fifty acres in nursery stock. Twenty-five acres small fruits.

Sleeper Bros., Fowler, Benton County. Four acres.

Small, Wm. H., Attica, Fountain County. Location, near town.

Smith, W. F., Battleground, Tippecanoe County. Five acres near town.

Smith, Al. B., Garfield, Montgomery County. Location, five miles northeast of Crawfordsville. Two acres small fruit.

Smith, W. H. H., Medaryville, Pulaski County. Dealer.

Snodgrass, J. M., Kirklin, Clinton County. Two and one-half miles southwest of Scircleville. Small fruit. Dealer.

Snoddy Nursery Co., Lafayette, Tippecanoe County. Dealers.

Snoke, J. W., South Bend, St. Joseph County. Location, in town. Dealer.

Stacey, W. E., Lyons, Greene County. Location, nursery two miles north. Six acres nursery, one of small fruits.

Stineman, Jonas, Wawpecong, Miami County. Location, six miles east of Bennetts. Dealer.

Stout, W. C., Monrovia, Morgan County. Location, two and one-half miles southwest.

Swaim, H. H., South Bend, St. Joseph County. Location, three miles southwest. Six acres small fruits. Dealer.

Teas, E. Y., Centerville, Wayne County. Location, one square from interurban line. Three and one-half acres, mostly ornamentals.

Terrell, W. T., Bloomfield, Greene County. Location, one-half mile north of town. Thirty acres in trees and two acres small fruits.

The Hancock County Nurseries, E. A. Henby & Co., proprietors, Greenfield.

Truex, G. W., Lockman, Brown County. Location, seven miles north of Freetown. One acre.

Tull, E. A., Scottsburg, Scott County. Peaches only.

Vernia, Mrs. Elizabeth, New Albany, Floyd County. Location, three miles southwest of city. Two acres in nursery.

Wabash Valley Nursery Co. (J. B. Evans), Bluffton, Wells County. Location, adjoining the town on west. Thirty acres mixed stock.

Walker & Son, F., New Albany, Floyd County. Location, two miles northeast. Five acres in nursery.

Ward, T. J., St. Marys, Vigo County. Location, two and one-half miles northeast of St. Marys and six miles northwest of Terre Haute. Ten acres of nursery and twenty-five in orchard.

Webb, T. J., Attica, Fountain County. Location, northwest of town.

White, Harry, New Holland, Wabash County. Location, ten miles southeast of Wabash. Eight acres small fruits. Florist and dealer.

Wickizer, James M., Plymouth, Marshall County. Location, two miles south. Eight acres small fruits. Dealer.

Williams, John J., Warren, Huntington County. Location, near town. Dealer.

Wilson, J. M., North Judson, Starke County. Location, near town. Small fruits.

Winchell, G. W., Tobinsport, Perry County. Location, northeast of W. R. Polk. Small stock. Six acres small fruits. One acre tree fruits and ornamentals.

Witwer, J. B., South Bend, St. Joseph County. Location, one mile east.

Wright Nursery Co., J. M. T., Portland, Jay County. Resides one mile west. Forty acres fruits and shade trees.

Young, George C., Greensburg, Decatur County. Location, one mile southeast. One acre nursery and one acre small fruits.

President Stevens: Has anyone a question before we pass on to the next paper? If not, we will pass on to the next, "Report of the Superintendent of the Experimental Orchard," by Joe A. Burton, of Orleans, Indiana.

A Member: Mr. President, Mr. Burton is unable to be here, but I have his written report, which I will either file with the Secretary, or read to the Society. I think I can read it.

President Stevens: Let us have the report. We want to know how this matter is getting along.

REPORT ON EXPERIMENTAL ORCHARD, 1903.

JOE A. BURTON, SUPERINTENDENT.

Trees have made very satisfactory growth. Many in seedling plat unusually large. It is quite amusing to observe these trees. Some are 10 to 12 feet high, with nice heads. Some are but little larger than at end of first year. Some are smooth and beautiful. Some are thorny and unpromising. Out of same variety of seed we have every variety of color for bark. Some of these trees are large enough to bear, but there is little chance for bearing while growth is so rapid. We think best to keep up cultivation another year; then seed down to clover and try to force them into bearing. None of these seedlings have died from root rot. Have lost about forty in top-worker and variety plats, in the last two years from this disease. These were replaced this fall and treated with different remedies for experiment on root rot. Some treated with a gallon of sand around the roots; some with a pint to a quart of Pamunky phosphate, and some with Tennessee rock. In my own orchard some trees already affected with root rot were transplanted with sand. Three trees thus affected were planted in pure sand on the farm of Wm. Turley, River Vale. The observation of orchards in sandy land free from root rot has led me to experiment with sand.

Last spring we set a plat of sixty Winesaps for testing the effect of different fertilizers on the growth of trees. Fertilizers furnished free by German Kali works. If of no other benefit these Winesaps will surely furnish a nice source of revenue for the orchard.

Another important experiment commenced was to test the bearing qualities of trees propagated from abundant and shy bearing trees. Varieties were Grimes and Genet.

All trees, except the seedlings, are protected from rabbits and groundhogs by inch mesh poultry netting.

Nothing positive has yet been done in regard to fence provided for by our last legislature. Every imaginable kind of fence and post has been duly considered. We are trying to make no mistake. The fence must be rabbit proof and lasting and at the same time within the appropriation. The indications now are that we will use cedar posts and the Brown fence.

Only pedigreed apple seeds were planted last winter. Of these, none grew except Genet pollenized by Grimes and Rome Beauty.

President Stevens: The next will be the report of the Trustee of Purdue University, Sylvester Johnson, of Irvington, Indiana.

Sylvester Johnson: A year ago I made an elaborate report which was criticised on account of its length. This year there will be no ground for criticism along that line.

As your representative on the Board of Trustees of Purdue University, I make the following report. Purdue is not only maintaining its high standing among the similar institutions of this country, but it has set its mark high and is rapidly approaching the enviable position to which it aspires. It is growing in the number of students and in permanent improvements. It is widening its work especially in domestic arts and sciences. It has even gone so far in the interest of the farmer as to establish a school of instruction in butter making for farmers' wives at a mere nominal cost. It is giving the farmers themselves great opportunities for acquiring knowledge along the lines of their vocation by the holding of Farmers' Institutes in every county in the State, to which it agrees, when requested, to send one or more of the members of its faculty. The completion of Fowler Hall, which is a magnificent building, and the installation of a large and efficient heating plant are the two prominent improvements of the past year. This plant furnished ample heat for the many buildings on the campus.

Respectfully submitted,
SYLVESTER JOHNSON.

President Stevens: Are there any questions? If not, we will pass on to the next topic.

Prof. Troop: There is one thing that I would like to speak about. It is not in connection with the report submitted by Sylvester Johnson, but it is on the subject of root rot and connected with Burton's report. This is a serious matter in southern Indiana, as well as in southern Illinois. A couple of weeks ago I attended at St. Louis, a meeting of the American Apple Growers' Congress. This matter was taken up and discussed by Mr. Waters, of Washington. He has given this matter a great deal of attention, and he spoke of a number of fungi that had been discovered on trees that were infested with root rot, and yet, he was not able to say whether any one of them was responsible for the disease. He has probably given that subject more attention than any other man in the United States, and yet, after he had gone through with his paper, and given a long talk on the subject, I don't think anyone knew any more about root rot than when he commenced, and I don't think he did. The fact is the disease, as he stated it, is underground, and it is very hard to get at—is very difficult to get at so as to trace it out from beginning to end. For this reason, these different fungi that are found on the trees, on the roots of the trees that have the disease, may simply be a result rather than a cause, so that as yet, we may say briefly, we know very little about it. We do not know the cause or the remedy for root rot.

President Stevens: Do you say this disease is confined mostly to the southern part of the States?

Prof. Troop: Not entirely, because eastern orchards are affected with it to some extent, but it is worse in southern Indiana, Illinois, Missouri, and that section of the country.

Mr. Stout: Is it confined to apple trees?

Prof. Troop: So far as I now it is confined to apple trees.

Mr. Ratliff: I should like to know if this root rot is causing the death of the trees just above the ground, or the bark breaking loose and dying just above the ground?

Prof. Troop: This disease is confined to the roots. The tree when the disease has completed its course will fall right over. It destroys the roots.

Mr. Swaim: I have never seen the root rot as it exists in the southern part of Indiana, but this year I found in Kosciusko County cases in trees that were just in the condition that Prof. Troop spoke of, and which at the time I supposed were affected with what they call root rot. The trees simply lost their roots and were standing there with the limbs dead, and you could easily push the trees over. I saw this in two different orchards.

Prof. Troop: I will say, as one of the committee, that one of the things that we are trying to work out down there in Lawrence County in the Experimental Orchard is something that will prevent this root rot. As yet, we haven't accomplished anything definite.

Mr. Simpson: Root rot is found in forest trees, and if we select a site for an orchard we must be careful and see that the ground is not inoculated, and possibly in that way we can avoid a great deal of this root rot.

President Stevens: Mr. Simpson, may I ask this question? Is it not a fact that orchards set out in new land where there is decayed vegetable matter, stumps, roots, etc., are more likely to have trees affected in this way?

Mr. Simpson: Generally speaking it is true, I suppose, but I am told by good authority, Mr. L. E. Goodwin, of Missouri, that he considered the vegetable soil excellent for apple orchards, but we must be careful in selecting a site to see that the timber is not affected with root rot. If the forest trees are affected the apple trees will be also, but if the timber has been clear of it, I should think it would be all right. Newly cleared ground is more likely to have it than old ground.

Prof. Troop: At the same time, while that is probably true, yet, I know of orchards that were planted on old ground that were infested with the disease of root rot just the same. In fact it is not known whether this rot attacks forest trees or the rot that does attack the forest trees is the same thing that attacks the fruit trees, but it is generally the case, however, when an orchard is set in newly cleared ground that it is apt to be worse than if planted in old ground.

Mr. Little: Are all varieties affected the same?

Prof. Troop: I do not know whether any varieties are exempt or not, but they are not affected alike.

Mr. Young: At what age are trees affected?

Prof. Troop: Generally speaking, I would say from three to six and eight years, or along about that. I have seen them when they have been planted from three to four years that you could push them over easily.

Pres. Stevens: May I ask you if in your examinations of nursery stock you have ever found root rot in the nursery stock?

Prof. Troop: No, sir, I have never found it in a nursery.

Mr. Davis: I should like to know if Grimes' Golden is more susceptible of root rot than any other variety?

Prof. Troop: I have been told by several that that is the case.

Mr. Davis: It is worse in our State.

Mr. Ratliff: It seems to me that we have selected the wrong site for our orchard. It seems to me that the interests of the State should be to select some place in which root rot was not so bad. Most varieties will grow as well in the central part of the State as they will in any other place in the State. I am like some of the fellows were when we were discussing where to place this orchard. It seems to me that it would be more convenient to the majority if it were in the middle of the State somewhere, and would be to the best interest of the horticulturists. I would be in favor of changing the location of this orchard even now, and go on experimenting in new varieites, and the different qualities of different varieties, seedlings as well as standard varieties. I think in the present location we will be always handicapped. We should not lose years of valuable time in the propagation of certain fruits and apples.

Prof. Troop: When a physician experiments on typhoid fever he usually goes where there is fever. For this reason I think we have the right spot in the center of the root rot. There is where we want it in order to experiment along these lines. We have things all right there to experiment with and the kind of soil needed. The conditions are very favorable for experimenting. It would be very much better if we could have two or three more of the same kinds of orchards in different parts of the State, but we haven't means for that.

Mr. Ratliff: It is all well enough to experiment, but we have experimental orchards for the purpose of determining different varieties of groups of fruit in general.

A Member: In speaking of the different varieties of root rot, I think that the Grimes' Golden is the worst apple in our State for root rot. I have tried them four times, I mean four different times, and three or four years is the longest that I can get Grimes' Golden to live. By this time I could push the tree over, I mean at the end of this time. I have tried planting it in the fall and in the spring to see if there was any difference, but there was no difference. Now I have some grafted in a White Pippin, and I believe they will stick. I would not plant a Grimes' Golden coming from a nursery unless I knew from whence it came. In our experience with the Grimes' Golden they will live six or eight years all right. I have a large number of varieties, but not a large orchard, and this is the only apple I have ever lost by root rot.

Mr. Simpson: The Grimes' Golden has a tendency to die just above the ground, and that is not just what is usually called root rot, and in discussing this I should think we had better be sure we are discussing the same rot. Are there not different rots?

Prof. Troop: Yes, sir.

Mr. Marsh: I want to ask Prof. Troop if when you discover root rot it will be safe to replant with another tree?

Prof. Troop: I do not think it is ever advisable to plant another tree where one tree has died.

W. B. Flick: You can make conditions suitable so that it is entirely safe to plant another tree when one has died with root rot or any other disease, or old age. Simply put a half pound or pound of dynamite under the old stump and touch it off. This blows away all the old roots, old soil and any germs of disease that may be left by the old tree. Fill the hole left by the explosion with new earth and plant your tree and it will grow all right.

Sylvester Johnson: In regard to root rot the stories are quite conflicting, and I will make it more so. I have now a tree that was planted thirty-two years ago, in Irvington, in the place where I am told by persons who lived in the neighborhood, catfish had been caught fifteen inches long. It bore more fruit last year than any other year.

President Stevens: What kind of a tree is that, Mr. Johnson?

Sylvester Johnson: The Grimes' Golden. That is the one we have been talking about last.

President Stevens: That is as much time as we have for this subject. We will now take up the next subject. We have with us a gentleman whom all of us know by reputation, a man who has the reputation of being an up-to-date orchardist, Mr. Collingwood of New York, who will speak to you now.

PLANTING AND FEEDING THE ORCHARD.

H. W. COLLINGWOOD, NEW YORK.

I suppose if one would take this crowd back to New Jersey it would make a fair looking Jersey crowd. I don't know whether that is a compliment for Indiana, or New Jersey. The American citizens have the same earmarks the world over, and every crowd is very much alike. Now, I want to say before I begin talking here today, that it seems a little strange to me that you should have invited a Jerseyman to come here and talk about planting an orchard. It is true that I raise fruit trees, but I am a fruit grower in a modest way. There are many men here today older than I am, who have had a fair knowledge and experience in planting an orchard, and perhaps know a great deal more about it than I: You are here on this soil of the Great West, and no doubt are proud of your lands, but I am none the less proud of my farm in the East. I must say, friends, that I feel my inability to tell you very much about planting an orchard, and I want to say this to begin with. My friend, Mr. Hale, came here once upon a time, and thought he would tell you things about the Ben Davis apple, and he afterwards told me that you folks base balled him out. I am not going to pretend to know it all; I am simply going to try to tell you what I am doing. I do not mean to say that you should do these things just as I am doing them, because it may be that your conditions will not warrant your doing this. I am going to talk to you this afternoon in this offhand, man to man way, about what we are doing in the East, what we think is right in regard to planting and caring for an orchard, etc. Now, it is quite likely that you will want to ask me some questions as we go along, and I want to state to you frankly just the situation, so that there will be no misunderstauding. I do not hear very well, and perhaps will not hear your question. If I do not stop and answer a question when it is asked it is not because I am afraid of it, for I am not afraid of anything I can hear. If I do not answer you it is simply because I did not catch it, and I will ask you to write out the questions and hand them to the President here, and he will act as the middleman. This reminds me of a little story.

When I was a small boy I was brought up on Cape Cod. Now this is the best place on earth to get away from, and the poorest place to stay. I well remember when I was a little fellow that there was one old fellow in the neighborhood that had a cider mill. I don't drink cider now. This old fellow was one of those closefisted people, and he told three of us boys that if we would pick up enough seedling apples from under the trees along the road to fill a barrel, and then put them in the hopper, he would give us all of the cider we could drink. Now, you can see friends, that I have had ambitions in my days. We hurriedly picked up the apples and put them in the hopper, and worked like Turks to get them in, then began to drink some cider. The old fellow came around the corner, and said, "Boys, you can have the cider, but you must not go inside the shed to get it." There might have been boys in Indiana that would have given up and gone away, but we kept our courage. We went into the rye field and got a straw, and one of us boys crawled through the fence next to the cider barrel, and stuck the straw into the bung hole. The old man thought he would fix us by building this fence, but we were equal to the occasion. But alas, the straws were not quite long enough, so we poked the one straw into the barrel, and the boy over the fence took both straws in his mouth, and this was the only way by which the boys on the outside could get the cider. This was my first experience with a middleman. It seemed that the highest ambition of our middleman was to fill himself up with cider. We could not get a bit until the middleman was satisfied. And the trouble was that when he was satisfied himself he lost interest. Now, I fear that that is the way with every middleman. But if you will write out your questions we will have the President to act as middleman, and he will pass the questions along to me as the boy passed the cider. I believe that we can have a better meeting in this way. Now, these questions are to relate to any matter.

I have rough land on which to plant my orchard; I know nothing about Indiana, how rough Indiana is, or how many hillsides you have. The reason why my work is done on this kind of land is easy to give. We have within fifty miles of New York City a great many pieces of land that have been abandoned. This land has supported five or six generations of people. The Eastern people have made a mistake. Many years ago they made money, and they made lots of money for the times and for the occasions, but when a man made a hundred dollars he didn't invest it in his farm. He invested this money in the South or the West. There have been millions of dollars of money dug out of the hills of New England. If I had a few per cent. of the money that has been made here I could make a big hole in the national debt. The fathers have been investing the money in other places until the boys and girls do not feel the respect they should feel for the farm, and have come to the conclusion that the farm is a good place to make the dollars but a poor place to invest them. If you make ten dollars and send it away for investment, if you have a boy to get up and say, "If father hasn't faith enough in his farm as a place to put his dollars in I will go where the dollars can be invested," you have no right to object. That is the way the New England people did. These places have supported and cared for six generations, and I call myself the sixth and one-half, because I was not born there.

As I have previously said, the people made money on these hills, but there came a time when the boys were no longer satisfied to live on pumpkin and milk and such potatoes as father couldn't sell, and the girls wanted the advantages of the piano, etc., that the girls in town have, and off they went. So, many of these hillside farms stand idle, and some of these places are only twenty-five or thirty miles from New York. So you see many hillside farms growing wild. They are idle, no one will take them and handle them. I saw this situation and it occurred to me that there was a good opportunity. There is an opportunity in everything that a man runs up against, or that a man runs away from. If you will take these things up there is an opportunity in them. If one man runs away from these things, and another man takes it up and puts ambition into them, and care and thought—this the first man wouldn't do—he can make a success, and it seemed to me that these hillsides farms were opportunities. I could buy ninety acres of fair land for four thousand five hundred dollars, or fifty dollars an acre, and it struck me that there was an opportunity that doesn't come into every man's life. I seized the opportunity. The first thing I did was to break three or four plows trying to improve the ground, and I almost came to the conclusion that I didn't blame the first man for running away from this job. I employed the Superintendent of the Sabbath-school, and started him to work, but when he came in at night his face was as long as a fence post, and he told me emphatically that he tried to plow the field and lost all of his religion before he got four times around. Now that is a dangerous thing to do to put a man to work in a field like that. When I found that I could not cultivate the ground I began to try to think of something else. I had been noticing that seedling apple trees were springing up all around, and the thought struck me, if wild apple trees will grow, why won't tame ones if they have right conditions. The best authority that I could get on fruit culture told me that there was no use in planting trees unless you could properly prepare the ground. It told me that I must prepare it as carefully as though I were going to plant corn, and that it was out of the question to handle such land in the way that I suggested. But still it occurred to me that my reasoning was perfectly sound. Now, my system of cultivating trees is on rough land, and I am not sure that it will be of benefit to you, but it will lead to discussion. If my statements seem too large call me right down. I am here to be jumped on and cut to pieces. I have always agreed with Saul, that the nearer the bone, the sweeter the meat. I don't know whether that is true in Indiana, or not. This appealed to us boys, because we were always given the bone to gnaw in those days. I think in the same way, that the nearer we can get the roots to the rocks the less danger there is from drouth. There is a better chance if the root goes down deep in the rocky mountain soils, and soils covered with stone and big rocks. It seems to me this is an ideal place on which to grow good varieties of apples. In the first place we begin without cultivating the land at all. I wish that I had a young tree here so that I could show you just how we begin. I have always believed that it was a mistake for me to take the trees just as they came from the nursery. I simply clip off the ends of the roots and dig a hole and put in the tree carefully and dance it up and down, and stand with a cup of sand in one hand and a cup of water in the other, and have a boy with a shovel to fill in the hole and tamp the ground down. It seems to me that my experience has demonstrated to me that it is useless to have a large hole in which to plant a fruit tree; I say it seems to me unnecessary. I take a tree two or three years old, that will stand probably a little higher than my shoulders, and with roots as long as is usually found on this sized tree, and cut the roots back until there is really no root at all except the tap root, and I also cut the top off until the tree stands only about three feet high. I cut the top away back, for the buds will come out again. Why do I do this? What is there in it? It is opposed to the theory of most of the nurserymen, who like to sell large trees to you—trees with large roots—and like to tell you the tree with the finest fiber roots is the one to plant, and that you must be very careful not to cut these fiber roots off. There is not one of these roots that lives twenty-four hours after it comes out of its native soil. Why do we want to plant dead roots? I used to believe the story that all these roots must go into the ground, but I think I know better now. My idea of cutting off the roots is about this. Suppose we cut it down so that the roots are very short, in the first place, then there is no necessity of digging a large hole in which to plant this tree. I planted fifteen hundred peach trees in crow-bar holes; I took the June Bud peach trees. The trees came to me a little large; I bought these trees in the South, and I cut them down to an average of eighteen inches above the ground. I cut the roots off clear, and there wasn't any more sign of a root on those trees than there is on this lead pencil. We took these trees into a space of ground that had not been plowed for over thirty years, and took the crow-bar and punched holes into the ground and pushed the little June Bud into the hole, and took a cup of sand in one hand and a cup of water in the other, and poured them in and made a cement around the tree, and pounded and jammed the dirt in with a tamper. Out of this fifteen hundred trees fourteen hundred seventy-five lived, and most of them are alive today. It is a curious fact to see how they are growing. I wish I could have one of them here. The first thing they do when planted this way is to start out roots and they run away down deep. When we tried to dig some of these trees up we found that the roots had run three, four and five, and sometimes six feet into the ground and then we lost them. I took one of the long-rooted trees and planted it by the side of these trees just as it came from the nursery. In every case the trees with the roots running out from the side were the first to die. Most of the long-rooted trees have their water roots near the surface of the ground, and when we do not have enough rain they suffer greatly, while the trees without roots run deeper and have moisture all the time, and the dry weather does not seem to affect them at all. I noticed that these roots would go four or five feet before they made a single sideroot. I have been asked what I think of this idea of total root pruning. It is just as much wrong as to put the tree in the ground with no pruning at all. In your soil four or five digs with a spade is deep enough for a tree. Take a little apple tree with the roots put into the bottom of the hole, and generally you find them putting fine dirt around them, too. We leave a tap root and pound the dirt in with a mall to keep the wind from blowing the trees over. You know in our country we have lots of wind, and we must have our trees in solidly or they will blow around.

President Stevens: Do you prefer this to staking the trees?

That is a fair question. When we cut off all of the roots the tree is hard to keep steady against the wind. The side-feeding roots do not come in until the second year: on the other hand when you leave the roots three inches long you get the double effect. I do not like to stake a tree. My experience is that when we put a tree pruned like that into the ground and pound the dirt hard around it, it is exactly like a boy starting up under hard conditions. Take a poor boy thrown out upon the world. His father can't assist him. His father is a very poor man, and is working hard to keep his family and can't even pay the mortgage. His mother tells him that she would gladly help him, but the other children have to be brought up, and there is no help for him. That boy takes off his coat and knuckles down and makes a man of himself. He is worth two men of the kind that their fathers put their hands in their pockets, and hands him the money to spend, or the boy that has his mother to intercede and beg for him if his father is not willing to furnish the cash. Now the tree that I have been talking about and the method by which I plant it is in most respects like the boy that has to shift for himself. The tree without roots follows the line of least resistance, and when it establishes itself in that way it seems to throw out side-roots and makes trees as we would have them made. I have found that I get a better rooted tree by cutting the roots off. When I planted my first trees in this way I didn't see how on earth they would live, but somehow or other they persist in living. You couldn't kill them. I dug up one of the trees and I was astonished to see what a strong root growth that tree had made. I have seen men go out of meetings like this and throw their shoulders back, and stick their thumbs in their armpits, and say, "What a big man I am." I hope I am not of this class. I think our distinguished men have spent too much time in telling us to prune and spray and how to take care of that part of the tree that is above ground. Is there any way to improve the root growth, and make the part of the tree that is above ground do the work it should? Why do we cut back the top? Why do some set the tree just as it comes from the nursery? The reason I cut the top back is because there are too many trees with the wrong kind of top. I believe the strength of the tree lies in that part of the tree which is just below the ground, or the main center or base of the tree, where most of the main roots start from. What is the most important part of a man? I should judge that the head should be. I believe in cutting back as close to this central base as you can and causing the tree to start out a new growth. You take a boy that has certain bad habits. Should we let him go and develop these bad habits more and more. No, that would be the worst thing anyone could do. You must see to it that you take these habits out of him. You must cut these habits out as close to the head and soul of the boy as you can, and start him out again. I cut the tree back in order to get the head to suit me. There has been a great deal of discussion over this matter as to just what is what. How close should the tree be cut? Some say within three or four feet of the ground. Why? The first wind that comes your tree will sway back and forth like a pendulum with every breeze, and you will lose your fruit in the swing, and when the fruit falls from one of these sky scrapers it has so far to fall that it is bruised so that it isn't fit for the market at all. When your trees are lower the fruit is not all spoiled when it drops. The low trees are much nicer to get at when you are trying to spray your orchard. I don't know whether this spraying problem is troubling you as much here as it is in our place or not. We are face to face with a tough proposition. The San Jose scale is working in our orchards in a most shameful way. Some orchards have been abandoned because the owners would not spray. I have a place in town where I live sometimes two months in the year, and I planted a plum tree that was entirely free from this infection. Now, in order to fight scale properly you want to get down close and get the scale while it is young. We find that the surest way to fight this is to begin with a brush and paint with lime of sulphur wash all the way from this time until spring. I find that the lime of sulphur wash is the most effective thing for this. If your trees are away up out of reach it makes it hard for you to go over them in this way, unless you had a brush with a very long handle, and I hardly believe that it would be satisfactory to fight it in that way. We do not want the apples to fall from the top of these tall trees to the ground, because only ten or fifteen per cent. of the fruit will be suitable for selling. We have good heavy sod underneath the trees, and when the apples fall ninety per cent. of the fruit will be first-class. Of course I will admit that the low trees have disadvantages. If you are going to have your hogs and sheep in the orchard you would want the limbs to be up higher or they will get more than their share. I have hogs in my orchard and the hogs will stand on their hind legs and take the branches in their mouths and shake the apples down on the ground. Sometimes hogs and humans are very much alike. I think by this method you will have a better shaped tree. If you will cut the roots off and plant a tree as I have described, you will note a peculiar thing.

You will observe that the lower buds will come out soonest. The pruned tree always heads lower to the ground. I believe that some men plant trees just as they come from the nursery even when they know they oughtn't to, but they dislike to cut them off, fearing they will not do it just right, or for fear they will spoil the tree, or because they are too chicken-hearted or something of the kind. They will do this when they know they ought to do otherwise. As I have said, if you prune back both the root and the top I believe it will make a better shaped head. This is the general way in which we plant trees.

Some folks say that sentimental reasons have no place in fruit growing, but I have two little waifs that I am bringing up, and I think this is the best thing that I could select for them to do. I want these two little waifs to stay on the farm when they are grown. I don't want them to be measurers of tapes and ribbons behind a counter, or to spend their lives making figures in books, or pleading cases in courts of justice. I want these little fellows to occupy this farm which I have honored. I want these little fellows to grow up with the farm. They can look back when they are grown, on the trees that they have planted, and say, "This is what I did with my own little hands." If I plant this in grass or potatoes or corn these boys might say they have raised so many crops of hay, or so many bushels of corn, or so many potatoes, but they will all be gone, and what have they to show for what they have done? The work will grow out of their hands. When one of these little fellows plants a tree in the ground and cares for it, and watches it, he can look back when he is twenty-one and say, "That is my tree." You could not get him to leave the farm, he would rather stay with his handiwork. I admit that your way of planting may be better than mine, but I like my way, and I am working more for these boys than for anything else. When I came to this farm there were three or four old orchards, but the apples were very small, and I lost faith in the orchards. I guess that was the trouble, that the people before me had lost faith in the orchard and had quit doing as they should by it. We have been at work year after year and we now have fine apples like these on the table. Get a plan and stick to it even though your wife makes fun of you, and the hired man tells the neighbors you don't know what you are doing, and the neighbors go around and say that they have a lunatic in their neighborhood. In the face of your wife you will live to see the time when all of the folks will come around and say, possibly not to your face, but they will say it, "There is a big man." No one will hardly say it to your face, but they will say it. Even your wife will think so. We don't intend to cultivate our trees. We cut the trees back and put them in the ground and let them look out for themselves. Some people put ordinary stable manure around their trees. My idea is that it is a good plan to put this mulch on before the ground freezes. The roots will start out fibres before they start into winter quarters. Put mulch around them. We plant the orchard in grass and probably take what we have to have for the horses and leave the rest in the orchard, putting it around the trees. I have cultivated some trees to see if there was any difference. I am forced to admit that there is a difference in favor of the cultivated tree at first. They are larger. They will not head so close to the ground. I have made the best looking head I think. This is the way we take care of the orchard. We feed the trees the best we know how. My orchard is not very large, because I want the boys to feel they have an interest in the trees, and want them to take care of them mostly. They can go out with the mower and a sickle and cut the grass down, and in this way feel as if the trees were more to them. When they are twenty-one you couldn't get them away from the farm. They will say, "Here is the work of our own little hands." Wouldn't it be a grand thing if more of our boys could be brought up to stay on the farm. The farm is the place for them. They can make a living on the farm. If the farmer wants his boys to stay on the farm he must invest some money there for them.

Now I have left myself open for questions if you care to ask any. There is an old saying where I came from that a deaf man either says nothing, or talks all the time; sometimes he does both.

We have to fertilize our land, for four or five generations have existed upon it and have kept taking off and not putting back, and it is now up to the place where we must fertilize if we get good results. I heard a man from Boston say the other day that the farming land of the country was in the West. He said that in Indiana absolutely all they needed was clover and that they never used chemical fertilizers. We can raise just as good crops as anybody, but we must use chemical fertilizers. It is absolutely essential for us to use them in the East. A great many of our people there have used the wrong kind of fertilizer and have almost spoiled their soil. Wood ashes are good for the soil, but most of the wood ashes that we find never saw the fire. They make this compound and sell it for wood ashes. This is done time and time again. They take potash, slag and lime, and form a compound which chemists can not tell whether or not it is wood ashes. It is certainly a mixture. We fall short of wood ashes. There is positively nothing better than wood ashes. Stable manure is good but it contains too much nitrogen. I think that the trouble with a great many orchards is that they are fed on this year after year, and consequently have more nitrogen than they need, and this promotes wood growth which has to be cut off. We get a highly colored fruit. When I advise the use of chemical fertilizer I sometimes run against a snag, for many people object to any form of this. In the East we have come to the point where we are ready to take anything if we can get our money's worth out of it. By using the fertilizer on top of the ground it keeps the ground fertilized and moist, but the roots are too near the top of the ground. If you use bone you will probably have good results, but you will find that the best results are obtained by putting the bone into the ground. When you take a form of fertilizer that is not soluble it is the best plan to put it under ground. Leave the top of the ground for the more soluble ones. If we could get ground phosphate rock cheap enough it would be fine. It sells for $16, which is $6 more than it is worth. This would be a benefit to our fruit growers. We could get it from France and Germany for much less than this if it wasn't for the cost of getting it over here. I can't say about this fertilizer for the Middle West for I am not acquainted with your land. or with your figures. We have found that we like the nitrate of potash. We use three parts of bone and one of nitrate of potash. If your land is rich it will not need so much feeding.

We have found that you want to plant peaches on light ground. I have found that if you cultivate a tree the leaves will drop off early, by the first or middle of November, and I wondered if this was the rule with all orchards, and I found that wherever I found cultivated orchards that seven out of the ten trees would lose their leaves early, and that on the mulched orchards the leaves would be thick and green. The whole tree would be green up until Christmas. It is not a good thing for trees to shed their leaves too early. It is best for them to stick on the tree as long as you can get them to. I presume this is true out here, that when one cultivates they need to fertilize more. There is one thing we must not forget in planting a large tree, and that is that there should be more fertilizer when a large tree is planted. A large tree absolutely needs some form of vegetable matter, not alone for the fact that it gives up nitrogen, but because it helps hold water. My experience is that the peach is in need of nitrogen in the soil more than any other form of fruit. You should put something in the ground in the form of a good vegetable fertilizer. I think you will like the color and character of your fruit if this is done—if you put vegetable matter into the soil. I have found this in regard to mulching—your fruit will be smaller but firmer, and darker in color than when you cultivate the trees. It is a singular thing and I can not explain it. It is a question of which kind of fruit you like best. One is higher in color, but is not so firm.

There is one more thing in my mind. I am not afraid to say this to a gathering of intelligent men and women like this. I do not like to leave this subject of planting trees unless I say a few words about the spiritual side of planting trees. There are different ways of looking at the farm. This is shown by this illustration. Two men lived neighbors; went to the same church; their children attended the same school; drank out of the same well, and both men worked on farms, but what a difference in their home coming. One man looked and longed for the sun to set and did not see that God had painted the sunlight on the hills and sky but saw nothing in this but the closing of another day of toil and drudgery. He said that life was not worth living, and he would to God he could get away from the drudgery and toil of the farm. But how different with the other man. Down deep in his heart he thanked God that he was permitted to go to his home once more. The home he would die for, the home he would fight for, and better than all the home he would live for as long as life and strength permitted. My friends, one of these men was living on the drudgery side of life, and the other man was living on the spiritual side of it.

When you plant a tree in the ground it is not a dead stick of wood with no life in it. What grows from the little stick which you put into the ground? "The labor of my hands shall fulfil my Lord's commands," and I hope that the fruit of this orchard will in a measure repay the hands that planted the orchard. Now I am ready for questions.

A Member: What is the difference in effect of nitrate and sulphate of potash?

Mr. Collingwood: The first difference in effect is on the pocketbook. If you buy the nitrate of potash you will have four or five dollars left. The nitrate has a salty, acid effect on the soil, and this effect is injurious to a great many fruits. I have known this to be used on strawberries, but the crop was very poor. Some people use the sulphate to improve the quality of the berry. The salt in the nitrate is what prevents the improvement. Common salt is more soluble than chloride of potash, but it is not always washed out of the soil.

A Member: Do you always practice fall planting?

Mr. Collingwood: I always practice it for apples, but not for peaches. I plant them in the spring. They will not do so well when planted in the fall, but I certainly do like to plant apple trees in the fall. I like fall planting best.

A Member: What breed of hogs do you raise?

Mr. Collingwood: Well, I keep the Berkshire, the Yorkshire, and the Chester Whites. They have good points. I have kept the Poland China; but I like the others best. I think they are the most intelligent hog, if intelligence is worth anything in a hog. They will run about; I will not say they will stand on their hind legs and play baseball with an apple, but they are a quick and active hog. You can buy a pig close to New York for $3, and feed him $2 worth of grain, and let him run in the orchard and eat the falling apples and in the fall sell him for $11. You can't take four or five dollars in Wall Street and make that amount of money on it. Therefore I am glad to say to you, my friends, that the Berkshire hog is a winner.

A Member: What grade of hogs do you keep in your orchard?

Mr. Collingwood: I keep the Berkshire hog, for they will run about and eat the apples as fast as they fall, and will watch for them, and some are wise enough to take the end of the limb in their mouths and shake it so that the apples will fall.

A Member: And you like wood ashes for fertilizer?

Mr. Collingwood: Wood ashes is the best fertilizer you can get. You must remember that wood ashes will not supply any nitrogen at all, and must handle them accordingly. This is a valuable way to fertilize, but it is very hard to get the genuine wood ashes.

A Member: How much are the genuine wood ashes worth?

Mr. Collingwood: You have run up against a hard proposition now. It is said that every pound of nitrogen is worth sixteen cents, potash five cents, phosphoric acid four and one-half cents. This is the basis on which they handle these in New York City. In Italy nitrogen is only worth one cent a pound. We figure that there would be one hundred pounds of potash, or $5; thirty-six pounds of phosphoric acid in a ton of potash, $1.60; six hundred pounds of lime, about $8 total value per ton. But I could not tell you just what a ton would cost you.

A Member: What is the value of wood and coal ashes, two-thirds wood and one-third coal?

Mr. Collingwood: I did not plan to answer any questions on this line, as I am no chemist at all, but on the basis you have named, I would say a ton of such ashes would be worth not quite five dollars. There is a small amount of lime in coal ashes, but there is nothing else of value.

A Member: Are coal ashes of any value?

Mr. Collingwood: They are not valuable for fruit at all. I sometimes use them to put around currant bushes, and pack them down hard. They are better for clay ground than for other soils.

A Member: About what time in the year do you remove the mulch from around your trees?

Mr. Collingwood: Generally about the middle of April, but it depends upon the season somewhat.

A Member: Is sawdust good to put around trees?

Mr. Collingwood: I would put rotten sawdust around the trees. But I would not use fresh sawdust. The fresh sawdust as it comes from the mill contains a turpentine acid which is bad for the soil. Sawdust that has been used as bedding for horses is good.

President Stevens: This finishes our program for this afternoon. We will have Mr. Collingwood again this evening, and after his talk there will be an informal reception and social in connection with this evening's program. The Committee of Arrangements is in the hands of the Secretary, who might as well name them now as any time.

Secretary Flick: That Committee will consist of William Stout, J. C. Grossman, Prof. Troop, H. H. Swaim, Mrs. Stevens, Mrs. Flick, and Mrs. Hale.

President Stevens: You will note this on your programs, and we have thought that this would be an excellent way for us to get acquainted with one another. Everyone must speak to everyone else before going home tonight.

If there is nothing further we will stand adjourned until 7:30 this evening.

WEDNESDAY EVENING SESSION.

December 2, 1903, 7:30 p. m.

President Stevens: We will now hear from Mr. Collingwood on "Handling Fruit in the New York Market."

Mr. Collingwood: Mr. President and Friends—I want to talk to you this evening about the New York fruit market. It is possible that the fruit market in New York does not concern you particularly, but there is just this about it—New York receives fruit from every city, State, county and clime. We have done a great deal of missionary work in New York. Now before I begin I want to say this. I want you to remember this story. There was a young minister just out of school that thought he would go out into the country and preach a Thanksgiving sermon for the good old fathers of the earth, and would preach them one that they would remember as long as they lived. He began his divine services, and railed on every ism under the sun. He thought he was doing his duty. After the service nobody said a word to him, excepting Deacon Jones, and he invited him home to dinner with him. When dinner was called the young minister took his seat at the table, and of course thought that he would be called upon to say grace, but instead the lady of the house did this herself. She said "Good Lord, I am thankful that this young man has come here to speak the word; I am thankful he has come here to speak with courage, and I am most solemnly thankful that what he says ain't so." Now when I get through and you are ready to say grace I hope that you will not say that you are thankful that what I say ain't so. I wonder if you have ever thought that within a radius of ten miles from the center of New York there are four million three hundred twenty thousand people. Just think of that. You could take some two or more of the States of the Union west of the Mississippi River and there would not be as many people in all of them combined as there are within a radius of ten miles from the mouth of the Hudson River as a center. This is wonderful. Out of this four and one-half millions of people not five per cent. ever raise any fruit; ninety-five per cent. are totally dependent on the farmers and fruit growers for what they eat. Suppose for a moment what would happen in New York City if they did not receive supplies from the country. For one day's consumption forty-four thousand barrels of apples, one hundred twenty-five thousand baskets of peaches, and two and one-half million quarts of strawberries are used. If the people of New York would consume as many apples accordingly as the farmers do, they would use instead of three per cent. of the apple crop, about fifteen per cent., or five times as many as they do now. The people of New York do not eat one-tenth of the fruit they ought to, and the fruit they eat is not as fresh as it might be. In New York they buy for looks, and the Ben Davis apple has not a taste in accordance with its appearance and it thereby begets a disuse of apples. This is why I am frank to say that the Ben Davis apple is not the proper apple for New York. I want to be perfectly fair and plain about these matters, friends. I will tell you the exact truth. The people of New York demand a strong, biting acid in their fruit. My partner is a man who lives in the city. He went to the city to live, and he educated his girls to be apple eaters. He told me this instance. He said to his housekeeper one day that every day there should be fruit on the table, and that he would be perfectly willing to pay for it. He said he kept a large plate of bananas, oranges, and red apples, which they bought at the grocery store. At first the apples were all eaten and the oranges and bananas left, but it got so that the apples were left and the other things eaten. He did not understand this, for he became so himself that he would rather eat an orange or banana instead of an apple. His bill for apples decreased, and the others increased. He thought surely something was the matter, and he began to investigate and found that the man where he was buying his apples was not selling him the same kind of apples as formerly. That up to the middle of February he had sold him Spitzenburgs, and after that time he had been selling his Ben Davises, and this was the cause. Now I am telling you the exact truth, and the facts just as they happened. This is the way the Ben Davis loses out. I will say this: I will not find fault, but I will tell the truth. The New York trade is peculiar. The apple trade is very peculiar. I suppose that seventy-five or eighty per cent. of the apple trade in New York is carried on by the push cart vendors or fruit stands, run by Italians.

There are many, many push cart men selling apples. I saw an old man on the corner of Broadway the other day; he wore a G. A. R. badge on his coat. Behind him stood a man with a push cart, on this push cart there were bright shiny apples, which he had shined with a cloth and placed them artistically in rows. The old man bought three of the apples, the nicest, brightest ones, and he ate one and threw the others away. They were good in looks only. This illustrates the fact that a New Yorker eats with his eyes. When they go along and see a fruit stand that looks attractive they do not stop to think whether or not the apples are good, but buy the apples just the same. They get them and eat them on the run. I suppose you will be astonished to know how many apples are eaten on the run in New York City. A man buys the apples, puts them in his pocket, and runs away, and eats them on the run. Up until a short time ago the idea of sitting down by the fireside and eating apples was totally unheard of in New York City. Ben Davises will not go in New York City, for they demand a highly flavored apple. I am not here to run down the Ben Davis apple, but I am telling you just what I think about it. I believe that more money has been made on them than on any other variety of apple, unless it is the Baldwin. But while you have made money on the Ben Davis in the past, you will not make as much money in the future. I will tell you why. In the first place the market has changed in New York. While it is true that the Ben Davis ranks far above any other variety just now, it will not stay there. The city market of New York is changing, and changing rapidly each year. I spent the winter in New York last year, in a flat. There were thirteen hundred people on one acre of ground. We had a little flat of five rooms. I took apples with me to the city that would have kept easily until May. This would have been from 210 to 225 days they would have kept in my cellar at home, and in 12 days they were gone in New York. They were almost the same as in a Turkish bath all the time; it was impossible to keep them cool. You could scarcely keep food there. It was foolish for one to buy a barrel of apples and try to keep them there, for they could not do it. This gets people into the fashion of not keeping anything in the house. I have known women's husbands come home at ten minutes past six, and want supper right away, and there would not be a thing in the house to eat. How different this would be from a farmer's wife. The city woman was not worried, because she had been there before, so she started to the bakery and this is what she got. She took a loaf of bread, a pound of boiled tongue, a pound of potato salad (and she was buying the potato salad at the rate of $9 a bushel for potatoes), and three ounces of butter, and a pint of milk, went home, and in a very few minutes supper was ready to sit down to. Most people in the city live in this way. They are living from hand to mouth, simply because they live in these flat buildings and the building is heated so that it is impossible for them to keep food; consequently the people can not handle the fruit in barrels.

I went to a country town and put an advertisement in the country paper, and said that I would furnish choice apples at $1 a basket, delivered free. We found this a good way to dispose of our apples. There were a great many people that wanted to buy apples in that way. We started out by furnishing red apples, but in these red apples we would slip a few greenings, because the people had it in their heads that for an apple to be good it must be red, and that yellow or green apples were no good. As I have said, we slipped a few of these apples among the rest, and without exception they asked for the green apples next. This shows that the people can be educated. We have sold three or four hundred baskets at a dollar a basket. This is a nice way to sell the apples. In the first place you can get good prices and deal direct with the consumer. This is more satisfactory than dealing with a middleman. When apples are kept on the table all the time the children get in the habit of eating them, and they could not eat anything that is any better for them. These people will get used to having apples, and will want another basket when this one is gone. I don't know how this would work in Indianapolis. When you are putting up small packages of apples you have to put in good ones, and this will keep your customers. Never put a poor quality of apples in small packages. If you do this you might just as well mark "fraud" on the back of the package. Sometime ago I went into a restaurant in New York City, and was very hungry indeed. There were no apples on the bill of fare. I called the waiter and said that I wanted a baked apple. She informed that they had no apples. I said, "What! No apples. I thought you were running a first-class restaurant." I acted as if I were very indignant. The proprietor came to me, rubbing his hands and asked what the trouble was. I told him that there were no apples on the bill of fare. I told this man if he intended to run a first-class restaurant he had better put apples on his bill of fare. I got two or three of my friends to go in and do the same thing, and the first thing that struck my gaze was "baked apples and cream 10 cents." Afterwards this proprietor told me this was the best thing he ever did. I think we should organize the American Apple Consumers' League, and whenever we go to a public table, or restaurant, we should ask for apples in some form, and if they have none, we will call the proprietor and ask him about it, and ask why not? We should all join this league, and ask for apples wherever we go. If people would eat two apples before breakfast, two before dinner, and two before going to bed at night they would live ten years longer. There is no reason why every restaurant should not have baked apples and cream, and if they do not have it, ask for it. If you will do this you will spread the good work. This is one of the ways in which we have spread this work in New York City. The New York Council of the Board of Aldermen passed a law prohibiting the use of acids in making lemonades. By this law the people were warned not to drink the lemonade unless they saw the juice squeezed out of the lemons, and in this way they successfully put an end to the practice of making acid lemonades. It takes money if you ever expect to do anything in this world. Money brings money. I was told by a certain man that after this ordinance was passed the sale of lemonade was doubled. I think it would be wise if the farmers of the country would get together and put their fruit together to have it marketed, but it seems they will not have confidence in each other. If you should pick out seven New Jersey farmers and put them in a room together, and their life depended on picking out one of the seven as the man to put their property in his hands, I am afraid there would be seven men that would go to the gallows. Six men would not have full confidence in the other man. I think it is a good way to put an advertisement in the newspaper, and say that seventy-five cents or a dollar will buy apples that you will guarantee to be good, and that you will deliver them every ten days in baskets. If the people in this State are anything like the people in our State you will sell every apple you have, and will make a whole lot more than by sending to any middleman. I raised one hundred twenty-five barrels of onions. My boys said that they would be sold on the farm. I wrote on a board. the sign, "Onions for Sale." We did not realize the possibility of the market. People will buy if you will put a first-class article before them. You have great advantages here in the Middle West for raising apples. You can not name a crop that will compare with the possibility in the apple crop. The people that raise cattle and hogs on the farm can not compete with you. Have good apples and you have no trouble of getting rid of them. Wall Street can not beat you. There is not a business on the face of the earth that offers a young man the money, and the clean money, that fruit-raising does.

A Member: What does it cost to become a member of the Apple Consumers' League?

Mr. Collingwood: Not a cent. All you have to do is to say that when you get to a public place you will call for apples in some form or another. I should think we could all join this league.

Mrs. Stevens: I signed this pledge and have stuck to it. I am a charter member of the Apple Growers' and Consumers' League.

Mr. Johnson: I am also a member. I have belonged to it eighty-two years.

Mr. Flick: I would suggest and move that all who are present tonight pledge themselves as members of the Apple Consumers' League, and that they rise to their feet to signify the same.

This motion was seconded by two or three parties.

The motion was unanimously carried.

Mr. Custer: I presume the Apple Consumers' League have apples on the table in the sitting-room every evening, if not all day, so they will have plenty of apples to eat before bedtime.

President Stevens: We will now hear from Dr. Van Vohris.

Dr. Van Vorhis: I feel quite a good deal of embarrassment in coming before you with a paper this evening, as I am not a fruit grower nor the son of a fruit grower.

TREE SURGERY.

DR. F. J. VAN VORHIS, INDIANAPOLIS.

Life is the mystery of the universe. What it is we do not know, and there does not appear to be much reasonable probability we ever shall know. We know there is something that when added to matter makes growth and reproduction, but what it is or what is the relation we do not know. Whatever may be that relation it does not appear to be very stable. It is easily disturbed or destroyed, and that which was a living body becomes dead inert matter, given over to decay and disintegration.

Theologians and scientists may continue to contend about how life began or how it will end. One knows as much about it as the other, and that is nothing at all. What is the difference between plant and animal life, or whether there is any difference, we have not the most remote conception. We may, however, if we have any power of observation, learn many things about its manifestations and the methods and laws of its work.

The horticulturist who, among his flowers, his plants and his trees, does not stand in awe of this great mystery of life, growth and reproduction, is not fitted for the work he is trying to do. The man who is attempting to manage trees, protect them and assist them in growth and development, ought never for one moment to forget that they are living things, and that he is dealing with life; a living structure; a living organism. The life of vegetation depends as much on organization upon structure as does the life of an animal.

A tree has organs of nutrition. It receives and appropriates food. It has organs of elimination by which it gets rid of waste matter. It is interesting to know that to a considerable extent the waste of vegetable life supports animal life; that the waste of animal life supports and assists in the growth of vegetation. Trees and people are mutually helpful. When I consider a tree I feel that it is one of my friends. Here is one that furnishes me food to eat. Here is one that furnishes oxygen and purifies the air that I breathe. I pass along our streets and see these unselfish friends of human life in trouble and I want to help them. On every hand I see them neglected, abused, wronged, and I can not help being indignant at that which seems to me almost criminal ignorance. A tree is fixed in position and can not move out of the way of danger like an animal. It can not run away from an ignorant man with an ax and a saw. Trees must be cared for and protected from that which interferes with their free life and growth. They are subject to injuries and diseases just like animals, and need treatment and nursing like an animal. The fractured—broken—limb of a tree needs intelligent attention just as much as a broken bone in the limb of a man. If there is a decayed and diseased part it requires the same intelligent methods of removal as diseased bone or dead flesh from an animal body. It is not, therefore, farfetched or out of place to call this care an intelligent management of injured or diseased shade or fruit trees the surgery of trees.

It requires no less intelligent skill or learning for a horticulturist to operate upon, nurse and care for an injured and diseased tree than it does for a surgeon to operate upon and nurse an animal.

Now I am not a horticulturist—I have had very little opportunity to study the subject from that side. I was educated as a physician and I greatly admire a fruit tree or a nice shade tree. What I know about trees has not been derived from a very wide experience with them. I believe, however, that it is possible for a man who cares for one tree with intelligent and interested observation to know as much about trees at least as the man who wanders about an orchard and sees nothing but the fruit on the limbs, or the man who is interested in nothing about the trees in his yard except the shade that falls on the ground.

Very often it is wise—often necessary—to remove superfluous, broken or diseased limbs or parts, and it is just as necessary that the removal should be accomplished in a way that will do as little injury as possible and insure as rapid healing as possible of the wound made by the operation as if it had been performed on the body of a man. It is dealing with a living body in both cases, and it seems to me that it must be true that the same general principles are involved and very much the same methods of procedure.

There are three branches of the subject that I would like to consider briefly.

First. The removal of decayed parts and the treatment of the wounds.

Second. Broken limbs. The results and how to remove or preserve.

Third. Tree trimming.

But I will have to consider these altogether, or I would occupy more of your time than would be proper.

Of course every one knows that the growing part of a tree is the outside of it; that the inside wood bears somewhat the relation to a tree that the bones do to an animal body. Trees are subject to wounds by accident, by the ravages of insects and in a variety of other ways, particularly on the streets and the yards of a city like this, that makes constant attention necessary. The trees of a city like this with paved streets that keep the rain out of the soil, with the earth undermined with sewer pipes, electric conduits, gas mains, hot water and steam pipes, have enough to contend with to make their struggle for life very severe. But the greatest enemy that has for years destroyed our shade trees and made the replanting of them necessary every few years is the ignoramus with a saw and ax who goes up and down our streets hunting for the other ignoramus who will employ him to multilate his trees and start them on the road to certain death. Wounds are made by insects in such a way that they are not observed until considerable damage is done. Under cover of the outside dead and exfoliating bark they burrow occasionally into the living, growing surface and burrow about under the bark until a considerable spot is denuded down to the solid wood; other insects attack the leaves and small branches. The wind and hail break or bruise limbs. But all these together if four-fold greater are nothing to compare with the ravages to which our trees in this city have been subjected by the so-called tree trimmer. If there is a decayed spot or a dead limb it ought by all means to be removed if it can be done. No surgeon would think of allowing decayed bone or dead flesh to remain in the human body, if possible to remove it. There is always danger from it. There can be no health while it remains. It is a continual source of irritation, and septic poisoning may result from absorption of the decayed matter. I can not see why a tree will not be injured or poisoned by allowing rotting wood to remain, particularly if the dead parts are so situated that the rain falling on them is retained and the decayed wood kept moist. I have not had the opportunity to observe many instances of this, but I saw one that was so marked as to leave no doubt in my mind about it. In front of my dwelling at 514 Senate avenue, where I formerly lived, there is a maple tree about eighteen inches in diameter. About eight feet from the ground was a limb four or five inches in diameter that grew at right angles to the body. About one foot from the tree a limb two inches in diameter had been cut from this limb so that the wound looked upward. Four or five years ago, one spring, after the leaves had become full size the leaves on this limb began slowly to turn yellow and some began to drop off. The limb had every appearance of beginning death. On examination I found the place decaying where the limb had been cut off and that the wood was rotten down into the center of the limb. I bored through the limb from the lower side—making a hole almost as large as the one on top—I found the decayed wood runing outward in the center of the limb six to eight inches and almost as far toward the body of the tree. I removed all the unsound wood leaving little more than a shell of the limb above, one inch thick. Within three or four days the leaves on this limb had regained their green, growing, healthy appearance. I could not avoid the conclusion that the decayed wood was killing the limb and that I had saved it by the removal of the rotting mass. That limb is a live, growing limb today. If it be true that such places on the body or limbs of a tree tend to exhaust its vitality, what must be thought of an operation of tree trimming that leaves at one time a hundred places so situated that they never can heal, and every one of which must be a point of decay attracting an army of insects to feed on the young wood thrown out in the vain attempt to repair the terrible damage done by the ignorant vandal.

Limbs are sometimes broken in healthy shade trees by the wind, in fruit trees by wind or the weight of fruit. If a man has a leg or arm injured the problem that presents itself to the surgeon is of considering the importance of the part injured and the severity of the injury, shall the attempt be made to save it or shall it be removed as the best way to save life. The same problem is presented to the horticulturist by a broken limb on one of his trees. Usually the importance of a limb is not such that it is wise to attempt to save it, although it sometimes may be. The only question is usually which will do the tree the least harm—to remove the limb or try to save it by caring for the break. If the limb is so situated that when removed the stump will look downward the difficulty is not great. It is usually better to remove such limbs. Often such breaks are so situated that the stump will point upward. Then you have a problem that will require good judgment, considerable ingenuity, watchful care and patience. The one thing that must be considered is how can the wound be drained. If you could hear a surgeon teaching a class of medical students you would hear the word drainage many times. In treating open wounds of the human body much stress is put upon drainage. The wound must be kept clean and so arranged that no fluids will be retained in it. This question of drainage is of even more importance in the surgery of trees than in the surgery of the human body. You can not change the position of a tree. It is fixed. You can not turn it around nor turn it over and secure drainage by position as the surgeon is often able to do in the treatment of the human body. Several things enter into the problem. The size of the limb is important. If a limb is cut off so that falling water is retained in the wound decay can not begin at once. If the limb is small and removed with a sharp tool at the proper time it will heal over in one season, but if it is large so that it requires the growth of several seasons to cover up the wound you are very likely to have trouble with it. Unless there is perfect drainage secured in some way the water will get into the exposed wood. It will decay and furnish an inviting home for insects and worms that will feed upon the young growth around the wound. You will often find after a whole season is passed, that, although much new tissue has been thrown out around the wound that no real progress has been made. On examination you will find that insects have destroyed much of this new growth and that water has got under the bark and that the last condition is worse than the first. Sometimes, as in the case to which I have referred, you will be compelled to cut into a limb on the other side to give it drainage, or cut into the body of a tree below the decayed place so that the water can have free exit. Keep this place open until the one on the top closes up. Above all things do not if you can get drainage fill a wound in a tree with some foreign substance, such as plaster of paris or cement. It would be just as sensible to fill an open wound in an animal body with such foreign substance. Now and then, however, you are up against a situation where you find it impossible to get drainage. Of course if you can attend to it often enough to keep the part clean and reasonably dry and keep the insects out of it you may succeed under most unfavorable circumstances. Such daily care as this is very likely to be neglected or the labor may be more than the value of the tree warrants. Under such circumstances I know of no better plan than, after the decayed wood is removed, to fill the hole with oakum saturated with balsam of Peru. Care should be taken, however, not to put anything in the way of the new growth that will be thrown out. If it is so situated that it can be done crowd the oakum in loosely, but crowd the hole full, and then pour the place full of the balsam. If the tree is of sufficient importance to justify such expense and trouble you will sometimes succeed in closing up the wound.

You will readily see, of course, how what I have said so far applies to the trimming of trees and to the wounds caused by trimming. It would seem that any man who has sufficient intelligence to be allowed to run at large ought to know that the cutting of large limbs can not be justified as consistent with the preservation of the tree. All trimming ought to be done at a time and in a way that it will not be necessary to cut limbs of any considerable size. If this period in the life of a tree is allowed to pass it is gone for good.

What shall then be said of a man who will go up into a shade tree (or who will allow some one to do it for him) after it is thirty or forty feet high and saw off every limb he can reach, from one inch to four or five inches in diameter and leave the stumps sticking straight up in the air? There is no excuse for such ignorance. No man who knows anything at all of life and growth would think of doing so foolish a thing. Year after year I have seen this foolish and wicked thing being done in the city of Indianapolis by people who are so thoughtless and nonobserving that they never learn anything by experience. Did any man since the world began ever see a limb that had been cut off where it was three, four or five inches in diameter, and the stump left standing straight up in the air heal over? If there has been such an instance, then it is worthy of a place among curiosities with the two-headed calf. Under such circumstances a limb one inch in diameter will not do it. I have had foolish people after they had their trees thus mutilated and when nature trying to hide the hideous sight threw out a multitude of small branches about the unsightly stump, and thus give a round top that to me was much like flowers laid upon a coffin, call my attention to the improvement in the shape and appearance of the tops. They did not know enough to realize that they were like whited sepulchers full of dead men's bones. They did not know that inside of the round top there were scores of places of decay that must as certainly kill the tree as if they had been girdled at the root. I can take you, if desired, to hundreds of trees in this city that have thus been started on the road to death. You can not fail to see them almost everywhere if you will observe as you pass along our streets. You will find them in every stage of progress in their passage to the wood yard. It is a good time now to observe them. They are not covered now with the apparel with which nature covers the ravages of death. Look at them. The water has, at the cut end of the limbs, entered between the wood and the bark and, assisted by the invited insects, has sent a decayed streak from the end of limbs thirty or forty feet high down one side of the limb to the trunk, down the trunk to the grass at the roots. Everywhere you can see these mutilated limbs with one side dead, while on the other side is a strip of live wood from which has sprung bunches of small limbs in the vain effort of the life power in the tree to repair the damage done or to compensate the loss that has occurred.

Such a senseless and ruthless cutting of shade trees is almost criminal. The life power of no tree is able to stand it. It will not kill the tree in one season, but it starts decay in so many places that the vitality is exhausted in vain effort to repair the damage done. Every wound becomes a home for insects and worms by the hundred, and year after year the struggle is harder as limb after limb dies and the usefulness and beauty of the tree is gone, although it may linger crippled and decrepit for eight or ten years or longer, but in many instances they are dead in three or four years or become so unsightly that they are cut down and replaced by young trees. I have lived in this city to see in some places the third set of trees, and these are now on their way to the wood pile, victims of ignorance and thoughtlessness. Will it never be remembered that trees are living things and that the structure of them can not be wounded and multilated without limit any more than can the body of a man? Being living things it is all-important that the life force should be conserved and assisted.

In trimming a tree the horticulturist should know enough about his business; about growth, about vegetable life and the peculiarities and tendencies of each tree to begin his trimming at a time in the life of the tree when it will not be necessary to cut large limbs. If it becomes necessary for any cause to remove a limb it should be cut in a way to make the smallest possible wound. Avoid the use of a saw. It tears the wood and bark and leaves the wound rough and more or less ragged. Use a sharp knife or chisel. Cut close to the part from which you remove the limb so that the new growth will have as little to cover up as possible. Make the wound smooth and do as little injury as possible to the bark around the wound. If it can be avoided do not loosen the bark where the cut is made. It is desirable to have the wound healed in one season or at most two. The longer time required for the new wood to cover the place where the limb has been cut off the more is the danger from the operation. Suit the time of the cutting so that there will be as little time as possible between the removal and the beginning of the new growth. Never leave a stump. If the limb removed is no larger than your finger and a stump is left of only a half inch it will hardly heal over in one season. If cut off close it will cover up very quickly. If a stump is left two, three or four inches it is impossible for it ever to be covered. The new growth will pile up about its base in the effort to get over it. After two, three or longer years the stump will rot and drop off. By that time it will be lucky if you do not have a streak of decayed wood running down into the body of the tree and damage done that can not be repaired. The question of drainage must often determine what limbs to remove. If the limbs are very small this is not of so much importance. If cut off carefully and smoothly they will heal over before any damage can be done to the exposed wood by water. If the limbs are of considerable size and the wound looks upward the horticulturist must be prepared to watch it through two or three seasons and until the wound is completely closed. It is better not to remove such large limbs unless the wound will lokk downward, and even then, if more than one season is required for it to close up, it ought not to be neglected, but should be examined frequently to see that insects do not make a home in it and prevent by their presence the healing process. Most of these insects are innocent, and will not molest or injure a tree at all unless their presence is invited by some wound.

Now and then we have a hubbub about some imported insect that is said to be about to kill all our shade trees. Two or three summers ago I passed a fine residence in this city one day where there had been three years before five or six as fine maple trees as could be found anywhere. I had noticed the mutilation two summers before of every tree. The whole top had been gone over and ever limb cut off about ten or twelve feet from the body of the tree. We were in the midst of one of the hubbubs. The owner was out in his yard looking up into the trees that now showed very plainly that they were on the road to death. He called my attention to a few white spots on the leaves and limbs and was much distressed that his trees were being killed by the "scale."

Shade trees are the beauty and the comfort of our cities and towns and a most important element in the preservation of the public health. If this society can do anything to educate the public along this line it ought to do it. It is almost alarming when a man of social standing and social culture like the one to which I have referred is almost panic-stricken by a few white spots on his trees and overlooks a hundred decaying and dying limbs on the same trees, every one of which is the direct result of his own stupid ignorance. Oh, we ought to have a forester says one. What good will a forester do if he is just as ignorant? What we need to stop this ruthless destruction is common sense and information. If I could arouse a little interest on this subject I should feel like patting myself on the back as a public benefactor.

Mr. Flick: I am greatly pleased with this paper and notice its ability and earnestness and wish that every citizen of Indianapolis could hear it.

Mr. Grossman: We have in our county (Lagrange County) a nice lawn planted with some beautiful shade trees, and around the court house there were sugar maples, elms, and other trees. They were planted quite closely. They were growing nicely, but one time I was surprised to notice in the local papers that the commissioners had engaged some pruners from an adjoining county, and trimmed the elms and maples in a fearful manner, and had taken out the white birches entirely. These young elms were forming nice tops, nice shapely tops, and I say it was a criminal act for the county commissioners to have them cut so.

I wish to say that we have a very flourishing horticultural society in our county, but I do not know that the commissioners are attending our meetings.

Mr. Henry: I would suggest that Dr. Van Vorhis organize a society to protect the trees.

Dr. Van Vorhis: I would probably be the only member.

Mr. Henry: I think that Michigan City has the prettiest trees of any city in the State. They have a club there, and Mr. Baker is President He makes it his business to see that shade trees are planted on the lots, and if the citizens are not able the club buys shade trees and puts them on the lots anyway. They have quite a society doing the good work there.

Mr. Cotton: I was riding out of the city on an interurban car the other day, and I saw trees that were trimmed so that only stubs were standing. The men claim they set the trees out and they should have a right to do as they please with them. There is not a man in this Society but what knows the finest shade trees he ever saw were never touched with the saw but left to nature's way. It makes my heart bleed to go through the city and see the trees so mutilated.

Prof. Troop: I am surprised to hear in regard to the shade trees in this city. I have been told, and I supposed it was true, that all shade trees are under the care of the City Forester, and no new trees can be set out or trimmed without permission. If these facts are true it is pretty bad on the City Forester. If these facts are really true they should be generally known.

A Member: I understand that there is a law of that kind, but they do not notice or pay attention to its enforcement, but let citizens go ahead cutting trees right along.

President Stevens: Before we go to the most interesting part of the evening's entertainment, the social part, I will appoint a committee on fruits and flowers. I will appoint Mr. R. S. Simpson, H. W. Henry, and J. W. Apple.

We are now ready for the social, and I hope all of you may make yourselves at home in a social way.

THURSDAY MORNING SESSION, DECEMBER 3, 1903.

President Stevens: It is now time for this convention to come to order. In view of the fact that Mr. Collingwood has to leave at 11:00 o'clock, we have concluded to change our program and hear his talk first this morning. Of course we can not afford to miss this talk, and so to benefit the most that are here, we have decided to change the program as stated. He stands ready to answer any questions that you may see fit to ask him. We will now proceed with Mr. Collingwood's talk on "Handling Fruit Lands."

Mr. Collingwood: Mr. President, Ladies and Gentlemen—I have been asked one or two questions that I think would be interesting, so I will answer them right here. Last night this proposition was presented. A man has a piece of ground which produced a good crop of potatoes last year. He wished to plant it in strawberries. He asked if it would be a good thing to plant the patch in rye first. I do not think rye is much of a crop except that it is a big, heavy, rough growing crop, and will put lots of vegetable matter into the soil. It should be plowed under early in the spring, for if it is not and there should come a dry season his plants will be sure to die, because when the roots go down they will find no moisture. But if the rye is plowed under early there will be a bunch of matter there in the ground, and it will act as a reservoir for holding water and moisture for the plant. If the man follows these suggestions, the chances are that he will have a nice crop of berries.

Several questions have been asked about wood ashes as one of the fertilizers here in the West. Most soils lack in phosphoric acid, and the result is very evident. People send their livestock away from the farm, and when you send a steer or a hog away from the farm that takes more phosphoric acid than anything else. In stock raising year after year a large amount of phosphoric acid is taken away. In raising clover, and crops of that kind nitrogen is brought back. We must have phosphoric acid in the soil, and must get it there in some way, probably in the shape of bone. You can not raise highly-colored fruit, of a firm texture, unless there is potash in the soil in some form. Potash soils are soils that produce the highest type and class of fruit. You must consider the question of potash right along with phosphoric acid, and the bone will settle the phosphoric acid question for you, and for the potash it would be well if you would use the wood ashes in some form. If you look out for all of these things you will surely raise good fruit.

Now I have here a number of trees, and by the use of them I will show you my idea of getting them in shape to plant. I would cut the roots entirely off, and leave nothing but a stub. Now since I have cut off the roots I must also cut off the top so that it will not be top heavy. I would dig a very small hole for this tree and stick the root part in, and then with a cup of water in one hand and a cup of sand in the other I would pour them into the hole. This should be packed tightly around the bottom of the tree. This should be covered with fresh dirt, and packed and pounded down. At first the growth will be very slow, but by the time they have grown out, they will make the handsomest tree you have ever seen. They are low so that you can stand on the ground, or on the step-ladder and pick every bit of fruit off of them. They are perfect dwarfs, and they accomplish wonders. It is not the biggest man in the world that accomplishes the greatest things. Napoleon was a small man but he did a big man's work. It is not the size of a tree that determines the work it will do. I have been asked if you can raise trees in clay ground, and I will say that I have tried them in the heaviest clay I could find. I have tried them in sand. If there is any difference in favor of soils it is in favor of the heavy grounds. There are some people that buy trees that have an idea that trees must be petted and pampered in order to make good trees of them. Trees will grow under difficulties. When I was a boy I threw a cherry stone into a rock, which had a crack in it. Most people would say that of course it would die. I saw that cherry stone in later years and it had not died, but had broken the rock in twain. It pushed its roots out so that the rock was split in two. This is the way with the trees that we plant in the rocky soil in the crow-bar hole. They follow the line of least resistance, and make a fine, healthy tree. There is no place for the roots to go except down, and down they go. I am not sure this plan would work out here, but it is all right in our state. I did not come here to recommend this plan to any one, but I would like to have you try it. The nurserymen do not often send trees to us in this way. I usually take my trees and dip them into a wash composed of sulphur and lime, and in this way wash any scale off that may have a tendency to cling to the tree, and when they are planted they are free from insects. Most people would not have the patience to dip these large trees, but this is a different proposition. You may say that it is all very well to experiment with the small trees, but you would prefer not to risk it on a fine tree. I would be delighted to take experts out to see my trees. We cut the trees off just like this. (He cut off all roots leaving about 1½ inches, also all limbs the same.) A man does not like to do this sometimes. I have felt this way in times past. I have planted the trees and they did not act as if they were alive until the latter part of May. These trees now are among the best trees I have. The nurseryman will try to induce you to take the large trees, for it is not his business to raise fruit, he has to produce the wood. He must not stunt the growth of his trees. Most people want the big tree. He wants wood growth and nothing else, and when we get a hold of this tree we want to change it into a fruit bearing tree, and we might just as well cut it back and start right in the beginning. My experience is that this is the more business-like way to handle the tree, as it produces fruit of a better quality. I would leave a side root along here, putting out just below the crown; leave two or three, because if the wind is inclined to blow this will serve to stay the tree. I would take a spade and dig three or four shovelsfull out and put my tree in the ground. The dirt should be pounded down hard against the roots of the tree, and around them. You would be surprised to see how the tree will head under these conditions. It will come out in an open fan shape. We do not want the tree to go high in the air. We want a low, fan-shaped head, for the reasons I have already given. They are nicer for many reasons. I cut more root off than I have shown here, for the reason that I get a better tree as the result. When I leave more root I leave more top. There is no sense in the idea of cutting off the roots and leaving the top, or cutting off the top and leaving the roots. The first thing I do is to look at my tree and make up my mind what kind of a tree I want. I do not care for a center head. I would put it about eight inches into the ground, and pound dirt hard around the roots. What will be the result? I will have a tree that will grow and bear fine fruit. I like a basket-shaped tree. I am simply telling you how I would do this and if you like it you can do likewise.

Here is another tree, a large three year old nursery tree. I would not cut off so much from this tree. I would have to be more careful with it. It is too old. Most people demand large trees, but that is not what they need at all. They would think this is a first-class tree, but I do not.

A Member: Would you not recommend trees with center shoots? I have an orchard composed of trees mostly without center shoots, and the trees branch out, and get loaded with fruit, and they split to the ground. I have lost a great many of my trees in this way, because they split. I have a number with the center shoot, and it seems to me that I like them much better for this reason. It keeps the trees from breaking down.

A Member: A number of years ago I planted an orchard of about eighty-five trees, and I got these trees of a nurseryman named Louis Jones, a prominent member of this Society, and he had the idea that a tree should head low, and in selecting my trees he made me this proposition, that he select the low headed and I should select what I wanted, and we would see how they came out. Without a single exception when they commenced to bear the ones without the center stem broke, or split in two, and I immediately decided in favor of the center stem. I think your tree will be safer, and I think under all circumstances your tree will stand better with a center stem.

Mr. Collingwood: I can say in regard to his experience that when I planted trees in this way I put the roots in hard ground, and I get a firm body. I think there are advantages in having the center stem tree. I have always been of the opinion, although I can not demonstrate it, that many of the diseases that I might mention are simply the results of planting the tree. There have been one or two cases in Texas, and in two or three of the other States in the South where trees planted in the Stringfellow way have proved healthier and have resisted blight better than those planted with the roots. I have found that trees are just like animals. That they will take on a disease when they are not in a good condition that they would throw off if they were healthy. My theory is that trees planted in this way have two sets of roots, one set of water roots, and a set of feeding roots. They are quite distinct. If you will plant a tree and examine it in a year or two you will get a distinct idea of what I mean. These trees never suffer from drought. I like to sow clover and timothy together for they resist drought. These trees combine the root habits of both. The timothy is a surface feeder, for the roots run close to the surface, and the upper part of the soil will be dried out during the long hot days. The clover roots go down into the ground and in spite of the fact that the upper surface was all dried up and brown the clover went on into the ground and never suffered a bit from not having moisture. It will keep on growing. Now my idea in planting a tree like this is to get a tree with a root very much like a clover plant, with long roots, and spread out roots. When the tap roots start down there will be a double system of roots. I have traced the long water roots from five to six feet. In sod most of its feeding, as you know, is in the upper foot of its surface. It takes a great deal of water to feed a tree. I like broad, open headed trees. For the first two or three years your cultivated trees will be ahead of mine, but I am not raising wood, I am trying to raise fruit. I do not want to stimulate the tree and make a wood growth, and then have to cut two-thirds of it off. What is the sense of it? We are not raising fruit trees for cordwood in New Jersey; we don't need it. We are raising trees under natural forest conditions. If you want to see a sturdy tree that makes a fine growth, look at the white oak, or the chestnut. A forest tree is not cultivated. It generally grows from a seed, and it has tap roots that will go down, down, down and near the surface feeding roots, also. This is what I am aiming at in the production of peach, pear and apple trees. I like the center stem trees, because they are not so likely to break down and split off. I am trying to raise a bushy form of trees, for a double purpose. I do not care to raise common fruit, for it does not pay. I want to raise A No. 1 fruit. I want my trees low so that I do not have to climb around to pick the fruit, and so I can spray them better, and so that in falling from the tree the fruit is not injured. I do not care for so large a tree, because to have good fruit you must thin it, anyway. I don't want to raise wood and get cull peaches that will stand in front of the store until they are spoiled before they can be sold. I want to raise peaches and apples that will be bought, sold, and paid for, before they leave my farm. I wish someone would take this tree home and plant it, and see what it will do in two or three years. If someone will take it home and plant it in the way we have suggested, I am sure he will have a fine tree in the next few years. After two years you will be convinced that Collingwood knew what he was talking about. To begin with you may think it will amount to nothing, but in five years you will tell a different story.

I have been asked what I would do with a tree that had been planted one year, and had been planted in the ordinary way. Would I cut this tree back next spring? No, I would not cut a tree back after it has started. After a tree has started in this way I have never been able to do much with it. I like to start a tree as I would a boy or girl. You would better let this tree go to a certain extent, as I don't believe you can ever give it the type or shape now.

I now have a short time to speak on the topic assigned me. The "Different Ways to Handle a Fruit Land." What I have to say upon this topic will be entirely in the way of a suggestion, because, as I said yesterday, I do not know enough of the conditions here to warrant me to dictate to you. In the East we have four or five different ways of handling fruit land; it all depends upon the land and upon the man what system should be used. I will speak of my own system, not because it is the best, but because it has first place in my mind. My plan is to start in this way. I look forward to when my trees will be bearing fruit, and I try to get ready for this time. I start the trees in the sod, or in the hillside among the rocks. I expect to get a deep root and a low head. I do not intend to plow or cultivate the trees, but I will use fertilizers on them, and plant grasses or cowpeas, and let them take care of the tree. I head trees close to the ground. We like them because they are easy to pick in this form and easier to take care of. The tree is within reach of you all the time. A tree that has been cared for in this way will come into bearing earlier than a tree that has been cultivated. This is the general experience in the East. I do not mean to say that orchards will take care of themselves. We have farmers in the East who have apple orchards and have timothy and clover growing in them, and they cut the grass and take it away and never put anything back. I believe a tree needs to be fed. There is not a worse mistake made in the world than for a man to say it doesn't pay to take care of trees. If a tree is worth putting into the ground it is worth taking care of. Some people turn in eight or twelve hogs about the middle of June or the first of July, but my experience is that they rub against the trees and hurt them. I think it is all right to turn the hogs in, but there should be a wire net around the trees to keep them from rubbing up against the young ones and damaging them. With some people and trees it is a case of "root hog, or die." There is one of two things bound to be, and that is that you will either have very poor hogs, or a very poor orchard if you turn the hogs in to take care of themselves, and leave the trees to take care of themselves.

I suppose you will be surprised to learn that I have Ben Davis apples on my farm. My boys said that we were raising apples for business, and that on that account we should raise some Ben Davises. I planted fifty trees of Ben Davises. We plant grass on the orchards and when it is cut pile it around the trees. For a cultivated orchard there is nothing better than cowpeas and crimson clover. You can have a crop of cowpeas on rough, stony land, and even on the hillsides. This is one of the nicest things about cowpeas. Most other crops have to have the ground prepared for them. With the cowpeas you can go in with a spring-tooth harrow and go over the ground, then sow your cowpeas, and go over this with a roller, and you have your crop in. They will live under hard conditions. I do not know of anything that will make such a growth on our rough, rocky hilly land better than they will. I remember the first crop I ever had. I didn't even tell my wife about them, but went in the orchard with the spring-tooth harrow and the roller, and had a fine crop. They will grow on seemingly nothing. It reminds me of the preacher's horse. The minister is a privileged character, and he had an idea that his horse ought to live on faith instead of oats, and he turned him into the road to get grass on the roadside. When he happened to stray into someone's cornfield or garden they could not have a word to say because it was the minister's horse. Some bad boys that I knew pretty well had more courage than this. They made a sort of pair of shafts for the horse, which extended out in front, and on this projection they put clover hay, and it is said the horse walked ten miles after the clover hay. I never saw anything in my life do like those cowpeas did. When August came I was short of hay, and I cut the cowpeas and put part of them in the barn to use as hay. I had a good second crop of them on the same patch, too, and it was nearly as large as the first.

If you are going to plant anything for a summer crop it should be cowpeas. If a man will cut the cowpeas in August, and will bank them around the trees and run over the ground with a spring-tooth harrow, and sow crimson clover he will have another crop. I do not care to break up the sod. If you will dig into the ground you will find the roots are close to the surface. When you plow an orchard like this you set it back for two or three years. To cultivate this kind of an orchard you should pile the fertilizer around it. Our friend Mr. Hale calls his method, fierce cultivation. He goes in in the spring with a spring-tooth harrow, and plows the ground and cuts it first this way then that. And he keeps this up. This costs lots of money and time, but it gives a fine growth to your trees After they get this fine growth they cut the trees back, so what is the use of trying to get it? This is not necessary to get a crop of fruit. That is the point of difference between the man that does not believe in cultivating and the man who wants his trees to grow to the skies and then has to cut them back. This takes a great deal of time, expense and fertilizer. A tree should be cut back to start with. Look at this tree in my hands. Does anyone think they would have an ideal tree if they did not cut it back at all? This is a handsome tree, and why not put it into the ground just as it is and start it and push it? If you did not trim this tree at all, the limbs would get crooked and grow around each other, and you would not have nearly so good a fruit producing tree. We don't want wood, but fruit. Which method will produce the longest lived tree? The closely trimmed one every time. I would be willing to bet on that. It stands to reason that roots that never fail in their water supply will live longer than those that are affected by drouths. Why does a tree in the forest live longer than an orchard tree? Take for example the maple. In the forest it will outlive the cultivated tree because it is living under natural conditions. Its roots are never disturbed, and they do much better. This would be the case with any kind of a tree. Excessive mulching introduces too many surface roots. But how can you have too many surface roots if you have a tap root, too? Wouldn't it be good for an animal to have all the mouths and stomachs he could have? It would not be good for a boy, but it would be good for a tree. I agree with you that it would be a bad thing to have all the roots near the surface. Plowing kills these roots.

A Member: If you had set out trees last spring and had not pruned them when you set them out; would you prune them yet?

Mr. Collingwood: Yes, I think I would, moderately. I would not prune them as much as I would were I just setting them out. I make a tree as near the shape I want it as possible when I am setting it out. Now the other method practiced in southern Jersey is on hilly land. I don't know whether you have much hilly land in this State or not. We have in the southern part of our State. This land is low, and sandy, too, in some places. Our people think this land is fine for peaches. Their method of procedure is different from anything I have spoken about. They put trees in with fairly long roots, headed back pretty well. For a space of four or five feet around the trees they do not cultivate at all. Some places if there are any stones they will pick them up and pile them around the base of the trees, but not close to the trees. In the cultivated space they sometimes raise cowpeas and sometime sweet corn, and frequently potatoes. In some cases they have asparagus planted in rows five feet apart, but every two or three years they raise a crop of cowpeas. Their object is to get just as much as they can. Their trees are headed low.

There is one problem that we are up against in the East, and that is spraying. This is a hard proposition. We have to begin now to spray with lime and sulphur wash, and then with Paris green. I don't know whether it is something we have done, or haven't done that we are so cursed with insects. We have to eliminate them as far as it is possible for us to do so. There is another thing that bothers us, and that is to get men to run the sprayers, or even to do any kind of work for us. We are so close to the city that they get into the notion they must stay in the city, where they can get from $2 to $2.75 in the factories, and of course we can not compete with that price. We are at the mercy of the farm laborer. We can get a foreigner and get along very nicely until he understands the English language. As long as you keep them ignorant they will stay, and although I believe in higher education I sometimes doubt if it is the best thing here. I have a friend in Maryland, and he says that the foreigners are fine at first, but they soon get so they will not go to work until the whistle blows, and when it comes quitting time they will quit. We are left at the mercy of the hired man. Now, I think I have talked my alloted time, and I'll give away to someone else.

Mr. Hobbs: I fear that someone will get the idea that the only way to get a taproot system is to prune it into that system. There are other facts that determine root form. The most important factor is the soil itself. The next is the variety. Now if you have a deep, rich soil in which the water level does not come too near the surface, you will have a deep-rooted tree, or plant. If your soil is favorable for roots, the roots will grow. If you have a cold, heavy wet soil with the water level coming near the surface, you will necessarily have surface-rooted trees, simply on account of the soil. All of these things are to be taken into consideration in this matter of root formation. The Ben Davis is not like the Rambo. I wanted to put in these remarks to level things up a little.

A Lady Member: I would like to ask a question as to why the farmers should be at the mercy of the laborers. Why can't they so arrange their business that they can pay the price that other people pay?

Mr. Collingwood: I suppose a person could talk all day on this subject and still there would be just as much to be said the next day. There is no one reason for it. There are several that might be mentioned. In the East the trouble with the farmer, and I think the chief trouble, is all in the fact that in the past the farmhand has held his position as inferior to other occupations. The farmer has not stood for his profession, and has not dignified it, and has not made it noble as they should have done, and the result is that the people have chosen to work in other lines. If the farmers will not make their calling what it ought to be—will not dignify it—other folks will not step in and do it for them. I am not talking of the farmers of Indiana, for I do not know about them, but I am talking of the farmers in the East. They do not get the places they ought to because they let the middleman stand between them and the wholesale man. The middleman gets more for handling the product than the farmer does for raising it. I had to buy a ton of hay last year. It cost me $19.75 before I got it. That same week I was writing to one of my friends in Iowa and he told me that he was glad and delighted to get $4 for the best hay on his farm. This is a difference of $15.75 between the price in Iowa and the price I had to pay for it. This man has to help support three families besides his own when he sells at this price, and he does the work. It is the same way with your apples. And this is the reason the farmers do not get the prices they should, and why they can not pay the prices that other people pay for labor. The farmer should reach over the head of the middleman and reach the consumers in the city himself. The farmers ought to go together.

Many of our laws have been against the interest of the farmer. Instead of rising up against them he sits still and continues to send the same men to Washington to run things. The farmer makes a good living on the farm, however, and some people think that as long as the farmer is getting enough to eat he should be satisfied. That is all a farmer ought to have. I do not expect to live long enough for these things to be changed, but I hope the time will come when the farmer will take the position to which he is entitled. He will not do it until he takes it himself. First, the farmer must have confidence in the dignity of his calling. If the farmers all should make up their mind that they would only raise enough for their own use and the use of their family and not one pound for sale, what would happen in the city? What would become of Chicago, Boston, New York, Philadelphia, etc.? Grass would be growing in the streets, and the people of the city would be down on their knees begging the farmer to go to work and produce food. The farmer should have great credit. You should reach over the middleman and do business for yourself entirely.

President Stevens: I am sorry we can not continue this discussion, but we have a lengthy program before us and we must discontinue it.

We have with us Mr. John T. Stinson, who is Superintendent of Pomology, Department of Agriculture, for the World's Fair at St. Louis. We will now hear from him for a few minutes.

Mr. Stinson: Ladies and Gentlemen—I am going to say just a few words concerning the Indiana exhibit at St. Louis. I am not going to take much of your time, because I am told by the President and Secretary and a number of Indiana people that you will make an exhibit at St. Louis that not only Indiana will be proud of, but the exhibit manager will also be proud of it as well. I believe that this will be the result, so what I have to say is not so much in the way of urging that something may be done, but simply in the way of encouragement.

The first thing that I can remember that would indicate that I was connected at all with the fruit business was eating dried apples down in Indiana when I was a very small boy. I was born in Indiana, and my parents moved West while I was still a small boy, and for years and years and years and years our people sent to Indiana every year for dried apples. They were sent to us in barrels, I believe. That thing was kept up until we had good orchards of our own. This is the first remembrance I have of anything connected with the fruit growing business, and I believe that what little enthusiasm I have in the fruit growing business, and the love that I have for the business, was instilled in me by eating dried apples. I have tried to keep up the faith.

Now, as far as the fruit exhibit goes at St. Louis, I am very sorry that I can not show you the floor plans. I will bring them with me at noon, but I haven't them this morning. We are trying to have enough space for this exhibit. There will be about four acres included in this space, and while it may not all be occupied at the beginning it will be shortly after, but I believe that I can truthfully and safely say to you now that arrangements have been made, and will be perfected, so that on the opening day of the fair there will be four acres of space, and every foot of it will be covered with fruit. I might say also at this time that this fruit space will be covered with fresh fruit. The different States that are interested in this exhibit at St. Louis have become so enthusiastic that they are sparing no pains to make the best showing possible. The horticulturists and fruit growers in these different States have come to their rescue and have prepared fruit for this exhibit. Owing to the location of the Southern States they do not need to do so much preparing as we do who are farther north. The strawberries will help us out; then I understand there are quite a number of apples in cold storage. From the talks I have heard this morning I am fully aware that it is not necessary to tell the Indiana horticulturists that it is a mighty good scheme for them to send their fruit and rally to the support of your Society. It helps you and your Society when you do this. Each one of the exhibits must not only have a card telling from where it was exhibited, but it must have the name of the man that raised it also. If you produce good fruit you will get credit for it. This regulation will be adhered to. One man can not make a collection of fruit and put it in his own name, but he must put the name of the man that raised it on each collection—it must be exhibited in the name of the man that produced the fruit. Now, for instance, if you exhibit fruit from Indiana it will be necessary for you to give the name of every man, and the particular locality from which the fruit was grown. One man may produce better fruit of one kind than any other man in the State, and it is only proper and right that the man that raised it should have the credit for it, and that we should know from whence it came. Not only this, but from an educational standpoint it is of value, for it would take a wider knowledge than most people have to go to these exhibitions and tell from which part of a State a certain fruit would come if it were not marked. It is of great educational value to us. There is another reason for this. We wish to get all fruits of a kind together. We want to get all Ben Davis apples together, etc. You are interested in studying varieties, and right here you can study them. I would like to say for the Ben Davis that it is grown in some localities and is all right, and I believe even you might be induced to call it a good apple if you should see and taste one from these localities. This certainly would be an excellent opportunity for you to study the variety question. I know this, that we have never had this opportunity before. There has been a stagger made at the different exhibitions, but I think it will be successfully carried out here. This will give you a better idea of what you want to plant next year. I think this question should be studied, and here you will have an opportunity to study it.

I think, Mr. President, that this is all I have to say, excepting this, and that is that we want to give Indiana all the space she wants in our building, and will probably give her more than she wants. We want to do everything that we can to assist Indiana in making an exhibit that any one of the members of this Society would be proud of, and while it is important to you that you should do this it is also beneficial to the Department of Horticulture.

I thank you very much.

President Stevens: Mr. Stinson, our committee will want to confer with you before you go away.

Mr. Stinson: I will be glad to confer with them. I want to say just one word in regard to the American Apple Growers' Congress. I want to tell you something about this organization, about what we are doing, and what we intend to do, and give you an insight into the work that has been done. This among others I want to give, if possible, and get everyone of this Society to join this Apple Growers' Congress. We have heard about the Apple Consumers' Association, and if they are going to eat apples we want to know how to get them. This is a national association, and it meets once a year, and it is composed of the best apple growers—those who are taking the most interest. They meet once a year. At St. Louis last year we had a very interesting program, and some valuable papers were given. We had on the program the best men we could find all over the United States. We were very careful in selecting them, and consequently had a very profitable meeting. After this meeting was over we were taken on an excursion trip by the Frisco Railway to the Indian Territory, by compliments of the railroad, and on this trip we all became acquainted with each other and changed and exchanged ideas that were very, very valuable for us. This certainly was a valuable trip. Now this congress is composed of apple growers and those who are interested in apples, and handle apples. This congress is the same to the State Horticultural Society as the State Society is to the local societies. One causes the other to become more interested. The exchange of ideas is certainly very valuable. The membership fee for the first year is $3, and after that it is $2 per year. The proceedings of each meeting is published in bulletin form like this. It certainly contains valuable information. This bulletin contains a complete record of the proceedings, and there is only one way to get these proceedings and that is to become a member of this society. None of these are allowed to be given to anyone who is not a member of the society, and as a fruit grower I want to say that it is the most valuable society that I ever belonged to. You will become better acquainted with the ways of the people. If I had the time I should like to mention some of the topics that were contained in our last program, to give you an idea of the work.

President Stevens: We should like very much to hear these, but time will not permit.

Mr. Stinson: I should like to see all those who are interested in this work, and get their names as members of our society.

I thank you.

Prof. Troop: At this meeting that Mr. Stinson has been speaking of, a committee was appointed which made the following recommendations, and I want to read it so that it may go into our minutes:

St. Louis, Mo., November 18, 1903.

To the Apple Growers' Congress now in session:

We, your committee appointed on packages and grades of apples, would submit and recommend the adoption of the following:

Resolved, That this congress adopt as a standard barrel for apples a barrel which is one of the capacity of three bushels, which is 17⅛ inches in diameter of head, 28½ inches in length of stave, and bulge not less than 65 inches in circumference, outside measurements.

A standard bushel box shall be 11½x11½x20½ inches, inside measurement, sides should not be less than ¼ to ⅝ inches thick for domestic use and not less than ⅝ inch for export, ends or heads not less than ¾ inch thick.

Resolved, That a No. 1 apple shall not be less than 2½ inches in diameter and shall include such varieties as Ben Davis, Willow Twig, Baldwin, Greening, and other varieties kindred in size; and varieties such as Romanite, Russet, Winesap, Jonathan, Missouri Pippin, and other varieties kindred in size, shall not be less than 2¼ inches in diameter; and, further, a No. 1 apple shall be practically free from the action of worms, and not over 10 per cent. of the apples affected by defacement of surface, shall be hand-picked from the trees and not bruised or skin broken; shall be of a bright and normal color and shapely.

No. 2 apples may be ¼ inch less in diameter than No. 1 apples, and not over 20 per cent. of the apples affected by defacement of surface by scab, dry rot, worms or other defects, shall be hand-picked from the trees and not bruised or skin broken, shall be of a bright and normal color and shapely.

When apples are marketed in packages of either a barrel or box they must be well faced and carefully packed, well settled and sufficiently full to keep them from shaking in packages in handling, and shall be in sound barrels or boxes, sides of boxes and heads of barrels securely nailed.

We would further recommend, in order to reduce the per cent. of defective apples grown, that our apple growers throughout the whole country be more thorough in their culture, fertilizing, pruning and spraying, as it is very important to do all of these things to secure the best results.

F. D. VORIS,
U. T. COX,
L. A. GOODMAN,
WILLIAM H. BARNES.

President Stevens: Going back to our program, the next thing we have is "Commercial Apple Growing in Indiana."

Mr. Flick: I believe it would be better at this time to leave this until afternoon, as considerable of our time was taken with other matters.

President Stevens: We might have Mr. Teas' paper, as I believe it is not too long.

FLOWERING BULBS.

EDWARD Y. TEAS, CENTERVILLE, INDIANA.

This is a very broad subject. I have not lived long enough to learn very much about the matter; still I have grown a good many, and at this time have more than a million bulbs ready for spring planting.

I hardly know where to begin, unless it is with the earliest flower to bloom out of doors in the spring, the glory of the snow, with its long botanical name, Chionodexei Lucillea, a small bulb that comes from Siberia. This is about the first to open its brilliant sky-blue flowers, and it makes a fine border for a bed of other hardy bulbs, such as hyacinths, tulips, iris, etc.

Next to bloom with me are the crocuses, in many colors, yellow, white, blue, striped, etc. I like to plant these in October or November, in the sod on the lawn, in fancy designs, circles, crosses, wheels, stars, etc. Take a strong stick, like the end of a broom handle, drive it into the ground five or six inches deep, and drop a bulb in each hole, filling the hole with sand. The plant will come up next spring and yearly thereafter. The blooming is past and the foliage ripening before the lawn mower needs to start, so that the bulbs and their bloom do not interfere with anything. If crocus are planted in designs, it is important to use all of one color in each design, as different colors bloom at different periods, a few days apart.

Hyacinths and tulips are too well known to require mention from me, only to say every one having space for a flower garden should have a bed of these. Plant good varieties of them in October or early November, putting the bulbs about six inches deep and covering with sand or sandy soil. Before hard freezing occurs, the bed should be mulched with coarse manure to the depth of about three inches. This will be useful as a protection from the cold and hard freezing, and also add to the vigorous growth of the plants.

I think hyacinths are not worth the room they occupy after the second year's blooming, but bulbs are so cheap that no one need hesitate on this account to plant them. Tulips do fairly well for several years after planting, and succeed on most any kind of soil, though nearly all hardy bulbs do best in very sandy soil. In Holland, where these bulbs are grown to greater perfection than anywhere else, the soil is apparently pure drifted sand, worth only about $200 to $400 per acre.

Lilies are among the useful and beautiful bulbs, hardy, more or less, but then this thing of hardiness of plants is a matter of circumstances more than latitude. The beautiful Siberian lily, Tenuifolium, is perfectly hardy in Siberia, and grown so abundantly as to be an important article of food for the natives, while in central Indiana the same plant is not reliably hardy. The reason is that in Siberia the snow falls before the ground freezes, and the bulbs are kept warm and snug all winter, while here the ground freezes hard, and the bulbs are liable to perish.

Of the hardy, robust growing lilies that, once planted, are always on hand when the blooming season comes around, the list, in my experience, is too short to be satisfactory. First to bloom is the white, or madonna lily. This species is older than history, as the first notice made of plants speaks of it as well known. It is a native of the countries bordering on the Mediterranean, but cultivated in English and American gardens for more than two hundred years, and still is considered one of the best. It has one peculiarity not found to such an extent in any other—its one period of absolute rest is in July and August, when the bulbs are perfectly dormant, and this is the only time in the year when they should be disturbed or transplanted. If this is done at any other season of the year, great injury to the bulbs occurs, they requiring years to recover.

The white lily is one of the most beautiful, clear white, fragrant flowers, attaining a height of three or four feet, and blooming in the latter part of June. Another favorite of mine is the lily Elegans, of the Umbellatum family, a very free growing and free blooming plant, attaining a height of two or three and one-half feet, with clusters of brilliant orange-red flowers. One bulb will, in a few years, form quite a clump, and give a fine effect on the lawn.

The single tiger lily is well known as an every-day, always-on-hand flower, beautiful, if it was not so common.

Lily auratum, the gold-banded lily of Japan is well known. It is due to the variety to say that for the open border they are the grandest of all lilies. In the garden it stands long without fading, and its fragrance can be distinguished a long distance away. With proper soil, rich but free from standing water, with a mulch of coarse manure or other protection in winter, this lily attains magnificent proportions. Lily lancifolium, red and white, are beautiful Japanese varieties that flourish greatly under proper conditions.

If we come to bulbs for summer planting, the most important, and probably the most important of any season, are the Gladiolus (Little Sword), which derives its name from the sword-like leaves. It is an acknowledged fact among all growers of summer flowering plants and bulbs that there is no flower grown which requires so little attention and care and so little limited capital commensurate with results, as the Gladiolus. Although it is a flower that is especially adapted to window blooming, after the buds are well developed in the garden, still a magnificent display can be secured by planting in massive beds, or as a background for free flowering dwarf annuals. By successive planting every two or three weeks from April until late in July, a succession of bloom may be had from early in the season until November.

Nearly all gladioluses now grown are the result of crosses and scientific hybridizing of the dozen or twenty native species found originally at the Cape of Good Hope. Of these native species, I have only two in my collection of more than one hundred named hybrids. Of these two, Sandersoni is the most important of all, and Dracocephalus, or dragon's head, only a curious novelty, without any beauty.

Most of the millions of gladioluses now grown are all kinds mixed. A block of these in bloom presents a magnificent and interesting sight. I had, last summer, one block of mixed gladioluses embracing about 40,000 bulbs, with probably one-half of them in bloom at once, and yet it was difficult to find two spikes with flowers of same color and shape. It is the duty of the careful cultivator to go over the plantation every few days in the flowering season, mark the spikes of the best ones for future propagation, and dig out and destroy any that may be inferior. In this way only can he build up the quality of his product.

Gladioluses have been considered too tender to remain in the ground through our winters, but with the advent of Lemoines hybrids, Leichtleni and Groff's hybrids, greater hardiness seems to have been attained. In November, 1902, I harvested a crop of mixed gladioluses and replanted the block at once with lilies. The following spring the gladiolus bulblets from the size of a grain of wheat to twice that size, came up thick as newly-sown oats, with also some large bulbs that had been overlooked, so that we had hundreds of thousands of gladiolus to destroy in cultivating our lilies.

Another bulb that I like for spring planting is the white amaryllis, ismene calanthia, a rather large bulb that blooms beautifully in the open ground, with broad, fleshy leaves and white lily-like flowers, with a delightful fragrance. Florists consider this also useful for growing in the greenhouse for winter bloom.

President Stevens: I am very sorry our time is getting so limited that we can not discuss this topic at this time. We will be compelled to pass on to the next just now. We will now have the report of the Committee on the Fruit Exhibit to be made at St. Louis.

REPORT OF COMMITTEE ON FRUIT EXHIBIT AT ST. LOUIS.

Mr. President—Your committee appointed a year ago by your Society to select a deputy in each county in the State to gather fruit for the State's fruit exhibit to be made at St. Louis during 1904, begs leave to make the following report: Inasmuch as the State Legislature at its late session made provisions to cover the ground and do this work through a Board of Commissioners appointed by the Governor of the

State, your committee found it impracticable to carry out the work directed by you, but instead offered the Society's active co-operation, which was gladly accepted by the Horticulture Committee.

W. B. FLICK, Chairman.

Mr. Flick: It has been well and truly said by the Hon. Mr. Stinson, who has appeared before us in this interest, that it is something that the fruit growers of the State, in fact the people of the State at large can not afford to neglect—they can not afford to neglect this great opportunity to show what our great State can do in the fruit line. We have been told time and again that we occupy the central position for fruit culture. We have a very good climate, good markets, and in fact most of our advantages are superior to many other States for the culture of fruit. Why are we not a great fruit State? Because we have neglected to make the best of our opportunities. If we are going to show what we can do we do not want to neglect it any longer The committee asks your active co-operation in this matter until the end of the battle, and we expect to come out among the first ranks of the States, and at the next meeting of our Society we must hold a grand rally and celebrate the success we have achieved at the St. Louis Exposition.

President Stevens: Are there any reports to be made at this time which can be taken up before noon?

Mr. Flick: Mr. President, three of the worthy and beloved members of this Society have passed over to the Great Beyond since our last meeting. It seems fitting and well that a committee should be appointed to prepare some memorial to be published in our report.

A Member: I would move that this be done, and would recommend that Mr. Kingsbury, Mr. Sylvester Johnson and Mrs. Stevens be appointed on this committee.

President Stevens: Is there a second to that motion?

Prof. Troop: I second the motion.

The motion was carried.

President Stevens: Are there any other committees ready to report at this time?

Sylvester Johnson: I have a resolution.

President Stevens: Let's have it.

Sylvester Johnson: It is in regard to the Experimental Orchard:

Resolved, That there be constituted by this Society an Advisory Board consisting of three persons, whose terms of office shall be for one, two and three years respectively, and hereafter all appointments to be made for three years.

It shall be the duty of this Board to visit said orchard at least once a year, to advise with the manager of said orchard, and plan and direct the work to be done from one season to another. Said Board shall present to this Society at its regular annual meeting a full and concise report setting forth the result of all experiments and all work accomplished. Provided, That only the actual expenses incurred in visiting said orchard by said Board shall be paid by the State Horticultural Society.

President Stevens: What is your pleasure?

Mr. Stout: I move that this resolution be adopted as read.

Mr. Ratliff: I second the motion.

The resolution was unanimously adopted.

President Stevens: We will now have the report of the Committee on the President's Address.

Mr. Ratliff: Indiana Horticultural Society—Your Committee on President's Address begs leave to submit the following report: We have carefully examined the address and we heartily approve of his suggestions and recommendations. In regard to his suggestion for a standard bushel box and uniform package law, we would recommend that the Society appoint a special committee to look after this matter. And that in the matter of a monograph of the fruit resources of the State, that we heartily indorse his suggestions and would recommend that the Society take immediate action, and that the financial part of the matter be referred to the Executive Committee.

Respectively submitted,

JOSEPH C. RATLIFF,
H. M. STOUT,
J. C. GROSSMAN.

A motion was made, seconded and carried that this report should be accepted.

Prof. Troop: Your committee that was appointed at the Summer meeting to revise the constitution and by-laws are now ready to report.

President Stevens: We will hear the report.

Prof. Troop: I will read where we have made the changes.

See page 7 for new constitution.

Sylvester Johnson: I move you that this report be accepted and adopted.

The motion was seconded and carried.

President Stevens: Is there any other committee ready to report at this time?

Mr. Stout: The Auditing Committee is ready to report.

President Stevens: We will now hear this report.

Mr. H. M. Stout: We, the Auditing Committee, have carefully examined the accounts of the Secretary and Treasurer, and find a balance of $43.50 overpaid in fees by the Secretary.

We recommend, in order to simplify matters, that the Secretary be required to receipt for all moneys that come into his hands, and that the Treasurer receipt to the Secretary.

H. M. STOUT,
H. H. SWAIM,
L. B. CUSTER.

It was moved and seconded that this report be accepted and adopted, which was unanimously carried.

A Member: The Secretary's report yesterday made mention of funds used to hire plates for this Society, and I thought that I understood it to be three or four dollars. If that is right, we had better buy plates for this Society, and leave them packed here from year to year.

Secretary Flick: I will say in regard to this that we use the plates but once a year, and we have no secure place to keep them while they are not in use. We tried this in our county Society once, and found that it cost more in the long run than to rent them. I think it would be best to rent the plates. Five hundred plates would cost $60 to $70.

Mr. Davis: I understood it cost three or four dollars, and I thought if it were that much we would better buy, as we could afford to.

Mr. Flick: We have to pay for the broken plates when we rent, of course. The rent is 75 cents per hundred.

Mr. Johnson: It seems to me we ought to purchase the plates if we had room for them so that they would be safe from year to year; but there is not a place in here where they would be safe. If we put them in the closets they will be taken, and if they are in boxes they will be broken. If we could find a safe place to keep them it occurs to me that it would pay to buy them.

Mr. Grossman: If it is understood by me correctly the Committee at the World's Fair has to furnish the plates, and they are to arrange to have plates that will show off the fruit to the best advantage. Why couldn't we keep these plates, as we have to buy them, anyway?

Mr. Stinson: We are working to get plates that will show off the fruit to the best advantage, and all should be consulted in this matter as far as possible. We are thinking of purchasing a plate that will cost slightly more than the ordinary white plate but will be fine to show the fruit off. I can not describe this plate to you now.

Mrs. Stevens: I would suggest that you do not get a plate with any blue on it, for if you will look at an apple on a blue plate you will know the reason why.

Sylvester Johnson: The plates that are to be used at the Fair are ours, and we will not need to go and buy new ones, for we can bring them here, and of course they will belong to the State of Indiana, and not this Society; but I am sure the State will not object to our having our share of them here. But we have never been able to keep anything here even under lock and key without someone breaking in and taking what they please. It is not a safe place to keep anything that anyone else wants. I would suggest as a remedy for this that we get new locks, such as no one else has, and see if we can't do better.

President Stevens: As members of the Committee for the Supervision of the Experimental Farm I will appoint Prof. James Troop for three years, C. M. Hobbs for two years, and Mrs. W. W. Stevens for one year.

We will now have the report of the Committee on Awards.

Mr. President, Ladies and Gentlemen—Your committee to whom was entrusted the award of premiums on fruit respectfully submits the following report:

Collection of Apples for Central Indiana—Whiteley & Son, Cambridge City, second premium.

Plate Baldwin—Evan Swift, Franklin, second premium.
Plate Clayton—W. B. Flick, Lawrence, first premium.
Plate Hubbardston—Elim Osborn, Economy, first premium.
Plate Hubbardston—H. H. Swaim, South Bend, second premium.
Plate Fallawater—Elim Osborn, first premium.

Plate Northern Spy—H. H. Swaim, South Bend, first premium.
Plate Northern Spy—Jesse Henby, Cambridge City, second premium.
Plate Indiana Favorite—John Tilson, Franklin, first premium.
Plate Indiana Favorite—Elim Osborn, second premium.
Plate Indian Apple—Chris King, Rushville, first premium.
Plate Indian Apple—John W. Low, Topeka, second premium.
Plate Mann—Chris King, first premium.
Plate Mann—H. M. Stout, Trafalgar, second premium.
Plate Moore's Sweet—Elim Osborne, second premium.
Plate Yellow Bellflower—Evan Swift, first premium.
Plate York Imperial—S. T. S. Williams, Knightstown, first premium.
Plate York Imperial—John W. Low, second premium.
Plate Willow Twig—W. B. Flick, first premium.
Plate White Pippin—John Tilson, first premium.
Plate White Pippin—Ed A. Eichhoff, Wanamaker, second premium.
Plate Wagener—Miss Mary Grossman, Wolcottville, first premium.
Plate Wagener—Elim Osborn, second premium.
Plate Wealthy—R. L. Beck, Connersville, first and second premiums.
Plate Salome—Miss Mary Grossman, first premium.
Plate Salome—Elim Osborn, second premium.
Plate Roman Stem—Mrs. Rhoda Stanley, Carmel, first premium.
Plate Roman Stem—Chris King, second premium.
Plate Rome Beauty—Evan Swift, first premium.
Plate Rome Beauty—Chris King, second premium.
Plate Rambo—Elim Osborn, first premium.
Plate Pewaukee—H. M. Stout, first premium.
Plate R. I. Greening—H. H. Swaim, first premium.
Plate N. W. Greening—Elim Osborn, first premium.
Plate N. W. Greening—S. T. S. Williams, second premium.
Plate Lawver—John W. Low, first premium.
Plate Lawver—Elim Osborn, second premium.
Plate Jonathan—Elim Osborn, first premium.
Plate Jonathan—W. B. Flick, second premium.
Plate Rawles' Janet—W. B. Flick, first premium.
Plate Rawles' Janet—Elim Osborne, second premium.
Plate Grimes' Golden—Chris King, first premium.
Plate Grimes' Golden—W. B. Flick, second premium.
Plate Fameuse—Evan Swift, first premium.
Plate Fameuse—Evan Swift, second premium.
Plate Roxbury Russet—Evan Swift, first premium.
Plate Roxbury Russet—Ed A. Eickhoff, second premium.
Plate Ben Davis—Milton Stemple, Indianapolis, first and second premiums.

Collection Persimmons—James Little, Cartersburg, first and second premiums.

Plate Persimmons—James Little, Cartersburg, first premium.
Plate Persimmons—H. H. Swaim, second premium.
Collection Native Nuts—James Little, first premium.
Plate Vicar Wakefield Pears—Chris King, first premium.
Plate Winter Nellis Pears—H. H. Swaim, first premium.
Plate Keiffer Pears—Chris King, first premium.
Plate Keiffer Pears—J. J. Milhous, Valley Mills, second premium.

AWARDS OF FLOWERS.

Collection Mixed Cut Flowers—Mrs. W. B. Flick, Lawrence, first premium.
Flat Bouquet—Mrs. W. B. Flick, Lawrence, first premium.
Round Bouquet—Fred Dorner, Lafayette, first premium.
Round Bouquet—Mrs. W. B. Flick, Lawrence, second premium.

R. A. SIMPSON,
H. W. HENRY,
J. W. APPLE,
Committee on Awards.

December 3, 1903.

It was moved and seconded that this report be received.

President Stevens: The meeting will now stand adjourned until 1:30 this afternoon.

THURSDAY AFTERNOON SESSION, DECEMBER 3, 1903.

President Stevens: The meeting will now come to order.

Mr. Kingsbury: I have a resolution which I would like to give at this time.

President Stevens: We will hear it now.

Mr. Kingsbury: Inasmuch as the value of the proceedings of this Society to the fruit growers of the State depends very largely upon their prompt publication and distribution; therefore,

Resolved, That a committee on publication be appointed to assist the Secretary in devising some method of hastening the publication of our reports, and that said committee be empowered to act.

It was moved and seconded that this resolution be adopted, and it was adopted.

President Stevens: The next thing will be "Commercial Apple Growing in Indiana, As It Is and As It Can Be." I see that Mr. Grossman is not present, so we will take the next one on this subject. Mr. Swaim, are you ready to talk to us?

Mr. Swaim: Mr. President, Ladies and Gentlemen—I hardly expected to discuss this topic; in fact I made what I considered a good and sufficient excuse to our Secretary when he asked me to take part in this, and I supposed that he had granted my prayer in the matter until the program came out, and I then found out that he had put me on for a talk on this subject. At this time I had considerable other work on hand that it was positively necessary for me to do, and I did not have the time that I could devote to gathering statistics and facts on this line that I would have liked to present a paper before this Society, and so what I have to say is simply a talk in a general way on the conditions existing in this State.

This subject is of vast importance, not only to the horticulturist but to every citizen of the State as well, and is a subject worthy of consideration in every land, to every landowner, and which should attract the attention of capital. In the market reports of the country we see quoted Michigan apples, New York apples, Missouri apples, etc., but Indiana apples are not mentioned. We cut a sorry figure in making up the totals of the apple yield of the country. Nevertheless, we do grow some apples, and apples that we have no reason to be ashamed of when they get away from home. The farmer plants an orchard primarily to secure a supply of fruit for family use, and if in favorable seasons this orchard should produce a surplus he is willing to put them on the market, but commercial apple orchards in Indiana today are the exception and not the rule. There is but little territory in Indiana where the apple can not be properly grown if properly cared for, and there are extensive areas which by nature seem to have been made purposely for apple growing, and we persist in trying to grow wheat and corn upon these areas. I refer to the hilly and broken land of the southern portion of the State, and in a more limited area in the extreme northern part. With a soil exceptionally well adapted to the apple, they offer all the advantages of elevation and good air drainage to be gained or obtained anywhere. In the northern district the summit of the elevation consists of a range of hills extending through the counties of Steuben, Lagrange, Elkhart, St. Joseph and Laporte, and gradually descending to the south. The southern district is much more extensive and comprises the greater part of the southern third of the State. The portion of the State least adapted to apple growing is the low prairie land in the northwest. In fact this is about the only considerable area in the State where apples can not be successfully grown. My personal knowledge of the southern portion of the State is limited, but I have seen the product of this district on exhibition at the meetings of this Society, and at the State Fairs, and can truthfully say that I never saw finer specimens anywhere than some that have come from this section. The northern district has the advantage in latitude for growing winter apples, and the proximity to the great lakes moderates the extreme cold of the winters, but the fruit does not get the color that characterizes the southern grown fruit. How much of this is due to climatic influences and how much is due to soil I am unable to say, but believe that both have their influence. With all these favorable conditions we are buying large quantities of apples every year for home consumption, when we should be placing thousands of car loads upon the markets of the world. Seek the cause of this where we may, we can arrive at but one conclusion, and that is that it is the man that is lacking. There are a few enterprising, energetic men in various parts of the State who are demonstrating the possibilities of apple growing with profit to themselves, but the great majority are content to follow the beaten paths of those who have gone before us, no matter how crooked and full of obstacles they may be, without a thought of whether they are leading us to poverty or prosperity.

Much credit is due to the energetic men who have gotten out of the beaten paths, and their numbers should be increased, for we have but few Burtons, and Flicks and Thomases, and but one Zion. The work of this Society in our experimental orchard can not fail to be of great benefit to the State in this connection, and the Society can do no better work than to foster this industry in every possible manner.

Mr. Grossman: I am sorry I was late, but it was unavoidable. I did not write a paper on this subject, for I thought Mr. Swaim was better posted and able to handle this subject. I have taken a few statistics from the report of the State Statistician for the year 1902. In speaking of the conditions at the present time I find in what experience I have had, and in the observations I have made in traveling over the small portion of the State that I have been over, that as a rule farmers are not planting more apples than they need for their own use, and few are planting even enough for that, and the orchards that were planted in the past, as a rule, have become almost worthless and almost extinct, and the present generations are not replacing those orchards with the same number of trees that were originally upon the farm. A farmer as a rule selects a variety of apples that will meet his own needs, and about twenty-five or thirty trees are more often planted than a larger number. Of course there are exceptions. We have certain localities in the State where there are a number of horticulturists, and in the last ten years they have planted quite extensive apple orchards, and we will hear later from them because they will come into bearing, but in a general way very little planting has been done. I thought possibly the statistics might be interesting. I am well aware that these are not absolutely accurate, but they will serve as comparisons.

In the year 1902 we find there were four million seven hundred two thousand and thirty-nine (4,702,039) bearing, and 2,205,849 non-bearing trees in the State, and a total of over 6,907,888 apple trees in the State. Counting 50 trees to the acre, we have 38,157⅜ acres devoted to the cultivation of the apple. We have in this State 13,314,455 acres in cultivation, or in condition for cultivation. This gives 1 acre in orchards to every $96^{3}/_{10}$ acres under cultivation, or in round numbers $^{1}/_{100}$ part of the cultivated land in Indiana is planted in apples. The total number of acres of farm land is 18,968,689 acres, making 1 acre in apples to every 137½ acres in farm land. Now you can see by this, although it is not exactly accurate, enough can be gotten from this report to give us an idea, and it is sufficiently accurate to show you how we are lacking in number of fruit trees. Only $^{1}/_{100}$ part devoted to this, when we have farms of 40 or 60 or 80 acres, as most of the farms are, that would not give an acre to orchard, and you know that would be a very small orchard. Providing the land is not fit for raising commercial apples, that would be a small proportion devoted to fruit, and we all know that there is not a farm in the State but what is capable of growing apples, and every farmer can afford to devote this acre to apples. and should do it. There are thousands of acres in certain localities that are especially adapted to fruit growing. Why are they not devoted to raising apples? It is as Mr. Swaim has said—we lack the man to go ahead and do this. We lack the live, enthusiastic horticulturist who has faith in the apple and will go ahead and take chances, and there will surely be results from the work. Now, I believe I am sincere in my belief that in northern Indiana, as well as in southern Indiana, we have thousands of acres that if someone will go in who has capital, and plant under modern methods, and do the work as it should be done, we can compete with any other State in the Union in the production of apples. As I have said in this meeting a number of times before in the past years, in the lake region in northern Indiana and especially in the northeastern part of Indiana, there are hundreds of acres that are especially adapted in soil and climatic conditions to produce the finest fruit in the United States, and all that is lacking is someone with capital and energy enough, and enough love for the work to go ahead and produce the fruit. I believe this Society and its members can not do a better work than to urge this with all possible persistency. We certainly ought to be able to produce all the fruit we use in the State, and besides this we can produce thousands of car loads for other places. We have the moisture, soil and climate to produce as fine apples as can be produced anywhere in the world, and I believe we should do this.

I think this is all I have to say.

Mr. W. T. De Vilbiss: Speaking of the profits of commercial fruit growing, Thomas says in the "Fruit Grower," published in 1850, "For the last twenty years good winter apples have seldom sold at less than 20c per bushel and often as high as 30c." He claimed that at these prices it was more profitable than any other branch of agriculture, and recommended the planting of orchards.

Today, with good facilities for conveying to the market, with efficient machinery for caring for the orchard and handling the crops, and with the prices from 300 to 500 per cent. higher, there is no reason in my estimation why apple growing can not be made one of the leading industries of our great State.

Commercial fruit growing as it is and as it should be are so far apart that at the present rate of improvement it will be a long time until it will reach anything like it should be.

We have plenty of good fruit land. We have a home market for all of our fruit, at prices that will make fruit growing more profitable than any other branch of agriculture.

There are individual trees in this county (Allen) that have borne as many as forty bushels of marketable apples, and in the off year they have borne a paying crop. Yet our people have to look elsewhere for a great per cent. of their apples. Only a small orchard of the trees mentioned, properly cared for, would mean a fortune to the owner.

Forty trees to the acre, and an average yield of only twenty bushels would mean 800 bushels. In Indiana these apples would sell from 75 cents to $1.25 per bushel. There are very few other crops that yield as large a profit with the same amount of labor and expense.

But mere figures do not count much to the grower. He has the drought, the borer, the blight and a hundred and one other annoyances to deal with. All of these, however, can be overcome. With patience, perseverance and pluck, he will come out victorious.

It is necessary for the beginner to select a site carefully, and select only such varieties of good winter apples as have been proven successful in his vicinity. The new orchard must have efficient and painstaking culture. A crop of fruit is like no other crop. A man can not plan it for a year or perhaps two, but he must plan it for twenty, thirty or for the lifetime of the orchard. In order to make a success he must make a life business of it.

President Stevens: I see that the two gentlemen that have the next subject are not present, so this will cut short our discussion and we will be confined only to "Commercial Apple Growing."

Mr. Kingsbury: I want to read a statement from Henry Ward Beecher.

[For the extract read, see page 258, Annual Transactions of this Society for 1902.]

Mr. Hobbs: Some of us have thought along these lines for a great many years, and we have tried to encourage the planting of commercial orchards in Indiana, and those that have thought mostly about the matter today are convinced that there are great possibilities for apple growing in Indiana. When we have come in competition with other States we have won prizes, and our exhibitions year after year are convincing evidence that we can succeed even beyond our most sanguine expectations in the production of fruit. While these things are proven beyond a question of a doubt, the fact is we are not producing the apple. This is the situation today. Why? Simply because we lack men to do it. Mr. Burton in the southern part of the State is conducting a successful orchard. He has proven what can be done there. Flick has proven what can be done in the central part, and Zion in the northwestern part. These examples are having their effect, and we are going to see them, too. Large orchards have been planted in southern Indiana within the last year or two from the example of Burton's place. If we will increase the number of successful growers we will increase the number of commercial orchards. There is no question about the success or profit. I can not put my money into an enterprise from which I would get higher dividends than in the fruit business —in the proper planting of commercial orchards, in the proper location, and proper selection of varieties, and proper management of affairs.

Mr. Apple: In my section of the country, the north central part of the State, the idea prevails largely among the farmers that they can buy their fruit with less money than they would expend in buying trees and planting them on their land in orchards, for ten or fifteen years, and at the end of that time two-thirds of them would be dead. They will pay seventy-five or eighty cents a bushel for their fruit, and yet think it is cheaper to buy. I think if this Society could prevail upon the farmers of the State to raise enough fruit for their own use first, they might be induced later to plant commercial orchards. I have failed to raise fruit the last two seasons. My trees are thrifty and in good condition, but there was not one bushel of perfect apples in the entire orchard, and this is discouraging to a man that is solicited to plant out trees, even for his own use, let alone for a commercial purpose. I think we should prevail on the farmer to at least raise enough fruit for himself.

President Stevens: While we realize the importance of this subject, time will not permit us to go more into detail, or give more time to it. There are still four papers, besides the election of officers. The first will be "Growing Strawberries for Market."

Mr. Wilson: I am sorry that I did not have time to prepare a paper, but I have some points jotted down that will bring out discussion. I have been growing berries for possibly twenty years.

GROWING STRAWBERRIES FOR MARKET.

THEO. WILSON, INDIANAPOLIS.

The selection of varieties. This is a puzzling question. Varieties I grow on my fruit farm: Haverland, Bubach, Warfield, Pocomoke, Senator Dunlap, Wm. Belt, Clyde and Gandy. Do not set too many varieties. It is said no variety does equally well in all soils and in all localities.

I have said in my few remarks on the paper that a man must have capacity to grow strawberries. This reminds me of the old man that was sending his son to college to take a mathematical course. Finally he received word that his son was not getting along just right, so he went to see the Professor himself. The Professor said to him, "Your son lacks the capacity," and the old gentleman answered: "Well, just furnish him with anything he needs and I will foot the bill." Success with strawberries all hinges on a system, and this system must be strictly adhered to. With the wide opportunities which open to the ambitious and wide-awake, energetic strawberry grower, there is no limit to the greatness he may attain.

The first berries that I have any recollection of is the Wilson's Albany. This berry was first produced by John Wilson, of Albany, hence the name, Wilson's Albany. This was a grand, good berry. I have never yet seen strawberries that will come up to this berry. The berries did not get soft and mushy, and had a delightful flavor. I wish I had ten acres of these berries, now, as they used to be.

Strawberry growing in Indiana is a big thing. Our soil and climate seem to be adapted to their growth. In the year 1903 there was produced in Indiana more than five thousand bushels of strawberries. This much corn would not amount to much, but in strawberries it means a good deal. It would mean a value to the grower of eight hundred thousand dollars. Marion County alone in 1903 produced nearly thirty thousand cases, equal to twenty-two thousand five hundred bushels, in money value to the grower of $40,000. Indianapolis is a great distributive center. Our large commercial houses here are doing a wonderful business. They are known all over the United States. Berries come here early in the spring from the South. They come in from the southern part of the State itself early in

May, and all through May, and the latter part of May our own berries come on, and last for perhaps two or three weeks. Thirty thousand cases is not so exceptionally high, yet, it is a great many berries. Our berries go into the hands of the commission men, and they are then distributed to all parts of our great city here. I call this a great city. It is one of the great cities of the world. I think lots of Indianapolis; I like the place. It has made wonderful growth in the last ten years. It has gained the largest per cent. of population of any city in the United States, except Toledo. It is a wonderful city, and a wonderful place to consume strawberries. We have eight hundred groceries here. They buy from one to ten cases every day. Look what a number that is. They go into the hotels, restaurants, boarding houses, etc. Indianapolis eats lots of strawberries. Wholesale prices for berries at the commission houses for 1903 ranged from $1.20 to $3.00 a case. Let's figure from this. One thousand cases means three thousand dollars, or three dollars a case, and see what this would mean. All of you berry growers here know that there is money in it when you get $1.25 a case, and when you sell for $3.00, there is a big lot of money clear. When fruit growers know this why do they persist in growing those poor, measly berries that you have to sell at five cents a quart when you can grow good ones that will sell for so much more? There is a class of people that want five cent strawberries and wont pay any more, and there is another class that want the best and are willing to pay for them, and are glad to get them at most any price. We have men that handle this kind of berries. There are grocery stores on Pennsylvania, Meridian and Illinois streets that handle this kind of berries, and their customers are willing to pay for them. Of course you must have good berries if you charge a good price for them. In one year, I don't just remember the year, Mr. List o' this county raised on three and one-half acres about seventeen hundred cases of strawberries, and they were fine berries, too. He couldn't have made nearly so much on corn, or wheat or oats. We all know Mr. List and know that he was like George Washington. In 1882 I had a big strawberry crop. I sold nearly $1,200 of berries off of three acres of land.

The people in the city are different from the people in the country. There is a class in the country that don't like strawberries. You never see one on their farm. I know lots of people living out in the country who haven't a plum on their farm. Let me tell you about these people. This class of people are mostly Germans. One of them came to my house a few years ago and I said, "Fred, why don't you get some strawberry plants and have some fruit of your own?" He told me that he didn't care for them. He said, "Mr. Wilson, we don't care for strawberries." I told him that if he did not like these berries himself I was sure his wife and children liked them, and he should have some for them. He then said he did not have room for the plants. In a few months he came over and my strawberries were ripe. I said, "Fred, eat some strawberries." He said that he didn't care if he did. I am certain of this fact, and that is that I will never invite him into my patch again. You talk about going to the North to get good strawberry plants. Why you can get good ones right here in the central part of the State of Indiana. The best ones can be produced in the central part of the State. Everything is the best in the central part of the State. Did you ever count what it costs to buy the plants for an acre of land? If you set the plants a foot apart it will cost one hundred dollars, if you get good plants.

We talk about the pedigree of a plant. Do you know what that is? Some people sell pedigreed plants. I bought pedigreed plants once, and the pedigree of that plant was twelve dollars a thousand. I was green enough to buy five hundred of them. I never was worse fooled on strawberry plants in my life. I am not very anxious to pay for a pedigree on a strawberry plant.

President Stevens: We will be obliged to pass on to the next subject.

Mr. H. W. Henry: I will not take much of your time. I will give my paper to the stenographer, and if she can read it she will be doing more than I can do.

FERTILIZERS FOR STRAWBERRIES.

H. W. HENRY, LAPORTE.

The first essential in a good crop of strawberries is a good growth of vines. This can not be secured without good rich soil. The soil must first have the requisite elements to be suitable to the proper holding and retention of fertilizers. The best natural soil for strawberries is a clay. sandy loam. Pure sand is not good, as it will not hold moisture, and pure clay is worse as it is too difficult of cultivation.

With a good sandy clay loam to begin with, the first thing is to get the land full of humus or vegetable matter, and in a high state of cultivation. Commonly called tilth. Strawberries should never follow sod. If the land is in sod, that is intended for a strawberry field, break it up a year in advance and plant to some cultivated crop., One reason for this is the white grubs: they are generally bad in sod. An ideal preparation for strawberries would be to plough down clover sod a year in advance. Sow the land to cowpeas the following season, plough under in the fall and give a good coat of manure the winter before planting. You will then have your land in good cultivation, full of humus and oxygen and plant life.

I rotate my strawberry fields about every two or three years. I always have my field in cowpeas the summer before, and during the fall and winter spread a good coat of manure over the ground and plough in the spring just before planting time.

Your land at setting time should be in extra fine condition, well pulverized, and just ahead of planting, planked down smooth.

This treatment of the soil will no doubt, with good cultivation, produce a good plant growth. The cowpeas and manure will furnish an extra supply of oxygen and ammonia and perhaps this will be a detriment to the color and flavor of the berry. As the saying is, "the plants will go to vines." If so, then you must look to the other necessary elements in the soil such as potash and phosphoric acid. The strawberry demands a "balanced ration" as well as the horse or cattle. It is just as well for the strawberry man to look after this as the cattleman, if he desires to make a complete success of his business, and put the best product on the market. It pays no better to raise scrub strawberries than scrub stock.

All these elements can be supplied in their concentrated form and the wise grower will find what his conditions lack, and supply it.

For the past six years I have been using nothing but cowpeas and manure and have produced just what I wanted, a fine growth of plants, with the idea that some one else was to raise the berries. Every berry crop depends upon the man and its environments.

Lately I have been turning my attention also to the berry crop, and I find I am a little short on color and flavor. Size and color is what you want in a good market berry, something to catch the eye. I have now begun an experiment which I expect to carry to the end and see the definite results.

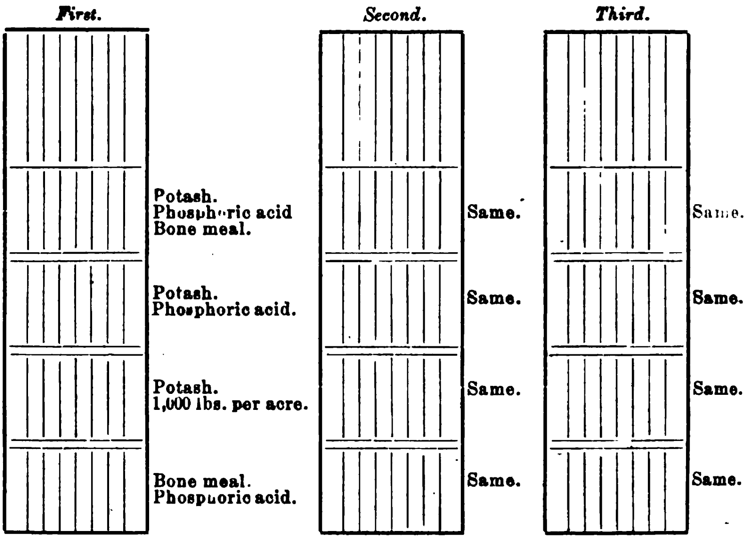
About the last of October Mr. H. A. Huston, formerly State Chemist, visited my place to make an examination of my soil, preparatory to a thorough and complete experiment with commercial fertilizers for strawberries. Many of these experiments have been made but not on my soil and with my conditions. He pronounced my soil well adapted to the growth of the berry and in a high state of cultivation as to humus and plant producing elements. I have three different acre fields, that are intended for strawberries next season, besides the plant field of ten acres. These three fields are all a little differently located as to lay of land and slope. The first one slopes to the east, the second to the west and the third to the south. I have found in my experience that a very little slope often has a decided effect on the crop of berries, provided we have a hard frost about blossoming time. I have never been seriously affected on more than one field when I have had different slopes, so as to effect the time of blossoming somewhat. In 1898 I lost the west slope, in 1903 I lost four-fifths of the south slope from the 1st of May freeze, while the other patches were not hurt in the least.

On each of these fields I have staked off a strip running across about the middle, and on these strips I have applied commercial fertilizers at the following rates per acre:

300 pound actual potash.
400 pounds phosphoric acid.
300 pounds bone meal.

The rate of 1,000 pounds per acre.

As per the following diagram:



On a strip a rod wide across each field I applied a mixture of each of these three fertilizers in the proportion stated above. On the second strip across each field alongside of the first strip I applied a mixture of potash and phosphoric acid in the proportion of 400 pounds potash to 600 pounds phosphoric acid. On the third strip I applied potash alone, at the rate 1,000 pounds per acre, and on the fourth strip I put bone meal and phosphoric acid in the proportion of 400 pounds phosphoric acid and 600 pounds bone meal.

It was applied about November 1st over the plants and on the ground between the rows and the Planet Jr. run over the ground to cultivate it in.

A good straw mulch or covering was put on November 16th and we are now waiting for results. This time next year I could give a good report of results. I expect to continue this experiment next spring on newly set beds, with the same fertilizers in about the same proportion and then determine which is the better time to apply it, fall or spring.

There is more money made out of strawberries in this State than any other one fruit, and I think I am safe in saying all fruits combined, and any information that will increase the size and beauty of the berry will be appreciated by a large number of growers. There is no other fruit or crop of any kind that can be made to pay from $300 to $600 per acre, and yet there are many things to be learned in growing fine berries for market. I hope the day is past when anything but the best will be put on the market.

This subject of fertilizers is an interesting and practical one and should be studied more fully by all growers of fine fruits of all kinds. It is necessary on all kinds of large fruits as well as small. I have a neighbor farmer who has a small orchard of apple trees which are in good condition, but would not produce any apples. It has been in his possession about eight years and this is the first year that any apples grew on it. Under my instructions he has plowed and manured it and two years ago he gave it a good coat of ashes. He sprayed for the past three years, but no apples, and this year he got discouraged and did not spray, but missed it, as he had a fine crop of apples, except that they were not sprayed. I think it was the cultivating and manure and ashes or potash, that gave him a crop of apples.

President Stevens: We will now have the next topic, "The Value of Birds to the Horticulturist," by Miss Florence A. Howe.

Miss Howe: The topic which I was asked to discuss was "The Value of Birds to the Horticulturist."

VALUE OF BIRDS TO THE HORTICULTURIST.

MISS FLORENCE A. HOWE, IRVINGTON.

The earliest American ornithologists recognized the fact that birds were of value to man, but the fact was not then emphasized as it has been in the last few decades. With changing conditions of living it became apparent that birds were not as numerous as they formerly were and that crops of various kinds were not what they used to be. Gradually a theory that there was relation between these two facts appeared, and various steps were taken to determine just what value, if any, the birds were to the men who made their living from the soil.

There were a variety of interests involved, among them the millinery interest, the sporting interest and the agriculturists who believed that the birds did harm to the crops on one side, and on the other the argiculturist who believed that the birds helped largely in saving the crops, and the people who, for reasons moral, esthetic or spiritual, objected to the wholesale destruction of the birds.

The battle for the birds has been going on ever since; the milliners' position was practically that the Audubon people, mostly sentimental women and bookish men, were all very well, so long as they confined themselves to writing poetry and pretty essays about the birds, but when it came to their really arousing a sentiment against the wearing birds for hat trimming, and actually got laws passed prohibiting the killing of birds for such purposes, that was an entirely different story, and really could not be tolerated at all. Sentiment and poetry were all well enough so they did not interfere with business, but this interfering with business had to stop. The men and boys who shoot any living thing that has not a money value and an owner, objected very seriously to having their sport hindered.

The study of economic ornithology received an impetus that resulted in the establishment of a division in the Department of Agriculture for carrying on this work and investigation along these lines. The published results of these painstaking, thorough and comprehensive studies furnished the friends of the birds with arguments that served to retire the business arguments of the milliners; for the business interests that the living birds conserve are so greatly in excess of the interests that make use of the bird skins, that the milliners' claims become ridiculous. They have shifted their ground, and not long ago I happened on a most pathetic wail in a fashion magazine, because some people were losing all sense of poetry out of their lives—"even the birds, our messengers from the skies, the spirits of the air," were coming to have a merely commercial value, nothing but destroyers of bugs and noxious weed seed. These sordid Audubon people were measuring their value not by the inspiration the birds were to mankind, but by that great American standard, the "almighty dollar." I counted some seventeen birds in pictures and descriptions of hats in the front part of that same magazine, the "messengers of the skies seemed to have answered pretty well for cascades of wings gracefully draped on the left side."

However, the birds are by no means as common for hat decoration as they used to be; and people are coming to find that some extremely interesting and valuable matter is being and has been published by these men whose business it is to study the birds and determine their value to man. Mr. Chapman in his "Birds of Eastern North America" shows the helpfulness of these investigations. He says, quoting from the report of Dr. C. Hart Merriam, Ornithologist of the U. S. Department of Agriculture: "On the 23d of June, 1885, the Legislature of Pennsylvania passed an act known as the 'scalp act,' ostensibly for the benefit of agriculture, which provides a bounty of fifty cents each on hawks, owls, minks and weasels killed within the limits of the State, and a fee of twenty cents to the justice or notary taking the affidavit. By virtue of this act about $90,000 has been paid in bounties during the year and a half which has elapsed since the law went into effect. This represents the destruction of at least 128,571 of the above mentioned animals, most of which are hawks and owls.

"Granting that 5,000 chickens are killed annually in Pennsylvania by hawks and owls and that they are worth twenty-five cents each (a liberal estimate in view of the fact that a large proportion of them are killed while very young) the total loss would be $1,250, and the poultry killed in a year and a half would be worth $1,875. Hence, it appears that during the past eighteen months the state of Pennsylvania has expended $90,000 to save its farmers a loss of $1,875. But this estimate by no means represents the actual loss to the farmer and the taxpayer of the State. It is within bounds to say that in the course of a year every hawk and owl destroys at least a thousand mice or their equivalent in insects. and that each mouse or its equivalent so destroyed would cause the farmer a loss of two cents per annum. Therefore, omitting all reference to the enormous increase in the number of these noxious animals when nature's means of holding them in check has been removed, the lowest possible estimate of the value to the farmer of each hawk, owl and weasel would be $20 a year or $30 in the year an a half. Hence, in addition to the $90,000 actually expended by the State in destroying its benefactors, it has incurred a loss to its agricultural interests of at least three millions eight hundred and fifty-seven thousand, one hundred and thirty dollars, or a total loss of $3,947,130 in a year and a half." Mr. Chapman continues: "To their credit be it said, the legislators of Pennsylvania were not slow to recognize the error which a lack of proper information had caused them to make, and that ruinous and absurd law was repealed." These investigations. beginning in 1885, have been continued to the present time, the results have been published from time to time, and now no horticulturist need lack the material upon which to base a judgment of the value of any given bird.

The report that roused the sorrowful indignation of the millinery editor to whom I have made reference, I found in the year book of the United States Department of Agriculture, 1898. "Soil culture may be said to be an everlasting war against weeds. A weed is a plant out of place; certain plants seemed to have formed the habit of constantly getting out of place. A single plant of one of these species would, if unchecked, produce in the spring of the third year ten billion plants.

Fortunately, certain agents are at work to check this harvest and perhaps the most efficient among them are the seed eating birds.

Each fall and winter they flock in myriads to agricultural districts and live upon the ripened seed of weeds.

Prof. Beal, who has carefully studied this subject in the upper Mississippi Valley has estimated the amount of weed seed eaten by the tree sparrow, junco and other sparrows that swarm down from Canada and feed in the rank growth of weeds bordering roadsides and cultivated fields. He examined the stomachs of many sparrows and found them entirely filled with weed seed and concluded that each bird consumed one-fourth an ounce daily. Upon this basis, making fair allowance for the number of birds per square mile, he calculated that in the State of Iowa alone the tree sparrow annually destroys about one million, seven hundred fifty thousand pounds of weed seed during its winter sojurn. "Think of it" wails our millinery editor, "spirits of the skies, nothing but weed seed destroyers."

The food habits of the common birds have been thoroughly studied in this way. Birds are taken in every month of the year in every part of the country. The stomach contents are carefully examined and the results of the examination tabulated and published. Any one who wants to take the trouble to ask, can have much of this data at hand to help him in determining the value of any bird about which he wishes to know. All in all, the impression is gaining ground that it is not good business to indiscriminately destroy the birds, even those that seem for the moment to be doing harm.

I was entertained for a few hours a short time ago by a woman whose husband owns a large farm in Morgan County. We were speaking of quail, and she said that they had not as yet posted their farm, as her husband was afraid people would think he was mean if he did, but he was going to. A neighbor of theirs who had his farm very completely posted was shooting on our farm, she said, and my husband asked him if he did not post his own farm and he said, "Oh, yes, he would not allow shooting on his farm: he was satisfied that the birds were useful and as his farm was small, he could not afford to allow them to be shot."

When every farmer, horticulturist and Audubonist in the country unite, perhaps they may be equal to the suppression of the cheap gun, operated by the still cheaper man or boy, and till they do, we may all pay tribute that these boys and men may have their sport.

President Stevens: The next will be by Prof. Amos W. Butler on "Birds and Fruits."

BIRDS AND FRUITS.

PROF. AMOS W. BUTLER, INDIANAPOLIS.

A fruit grower is one who grows fruits. We find people in our State who are trying to grow fruits, and those who are actually growing fruits. A man who raises fruit should know how to raise it to his best interest, how to raise the best quality, and how to market his crop. There are two great obstacles to fruit growing. These are injurious insects and plant diseases. Birds are of great benefit as they destroy insects, but there are two kinds of birds, those that are friends, and those that are enemies of the fruit grower. The latter class is not a very large one. It is therefore necessary that the fruit grower should make the birds his friends, and should know the birds that are beneficial and helpful to him.

The habits of birds vary with different years. Birds that naturally feed upon certain kinds of food one year will by reason of scarcity of this food, or for some other reason, subsist largely on another kind another year. There have been complaints published in certain agricultural papers to the effect that certain birds that were supposed to be beneficial to fruit growers in certain localities were harmful in others. Now there are many things that may account for this. The natural food of the birds may have been destroyed and they may have been compelled to subsist upon some other food. We all know how this is ourselves. We like a good dinner, but when we are hungry we will take what we can get, we will take what is in sight. This is the same with birds. There are certain birds that in one part of their range are beneficial and in another are exceedingly injurious. The Bobolink is in this class, and so is the Redwinged Blackbird. Birds may be attracted to neglected orchards, where they can render good service. One such orchard as this fell into the hands of a man who believed that birds were beneficial and he encouraged them to come to it. The birds were attracted to this orchard until the number became large and the insects in the orchard were destroyed. The orchard was green and bore good fruit, when other orchards in the neighborhood were stripped of their leaves by insects. We are told that five thousand insects will strip an average apple tree in a day, and that each bird will eat sixty of these insects each day, consequently a hundred birds in one day's work can save the foliage and fruit of a large tree.

The Rose-breasted Grosbeaks will destroy Colorado potato beetles. These beetles came originally from the west and occupied the potato growing sections of our State. When they came into northern Indiana and Illinois this little bird made war on them, and it is said that two of these birds kept these beetles off a quarter of an acre of potatoes. If any of you have ever "bugged" potatoes you know what a job these little birds had.

Birds will often leave their other accustomed food when they can get insects. Every seventeen years the periodical cicadas visit us. This occurred two years ago and seventeen years before that, or nineteen years ago. I recall having made observations of birds that lived on these insects during the season while they were plentiful. A long list of birds turned their attention to destroying them. This cicada is not especially injurious excepting to young orchards and nurseries, but the point is this, when insects appear in unusual numbers the birds will turn their attention to them to the exclusion of their ordinary diet. This is true with other kinds of insects, such as the army worm. Miss Howe has shown that seed eating birds are very helpful. Prof. Beal shows that in Iowa the Tree Sparrows from October to April destroy annually eight hundred and seventy-five tons of seed of noxious weeds. To my mind, the cuckoo is the most beneficial bird that visits an orchard. It feeds largely on caterpillars of the hairy sort. We have several woodpeckers. Among them is the Hairy Woodpecker, Downy, the Flicker, the Redheaded, the Yellow-bellied Sapsucker, and the Red-bellied Woodpecker. The Redheaded Woodpecker is especially conspicuous about cherry time. You find many woodpeckers in the forests, particularly among the hills of southern Indiana. The Hairy Woodpecker eats 68 per cent. insects; the Downy 75 per cent. insects; the Flicker 43 per cent. which is almost entirely ants; the Redheaded lives upon insects, and cherries—always the latter during the cherry season—the Yellow-bellied Sapsucker likes the sap of trees, principally of maples and apple trees, and also the insects which are drawn by the sweet sap. The Red-bellied Woodpecker largely destroys forest insects, and also insects that infest the orchard near by.

There is a belief that the Kingbird destroys many bees. Careful investigation has shown that while this bird is frequently found about the hives, and frequently darts in among the bees, almost all of the insects it catches there are flies and drones, and only occasionally a worker is caught. Its food is decidedly noxious insects. Its nest may be found in the top of an orchard tree and there it raises its young and gathers food nearby for itself and family.

There are three other Flycatchers that live about an orchard, the Acadian, the Great Crested and the Least Flycatchers. There is an interesting but curious thing about the Great Crested Flycatcher, and that is almost invariably you will find in its nest a snake skin. It certainly must believe in charms, or something of that sort. When you find a nest with a snake skin in it, it is safe to say that it is the nest of the Great Crested Flycatcher.

The Crow is a bird which is both a friend and an enemy of the fruit grower. It will take chickens and eggs if it gets half a chance, and will pull up the corn, and eat it when in milk, but aside from all this it also has its good traits. Most of the fruits it eats are of the wild kind, and it very seldom eats cultivated fruits. What does it do that is not injurious? It eats injurious insects. It destroys the insects from which we get our grub worm, which is so disastrous to all fruit growers. It eats May beetles, June bugs, and other destructive beetles; grasshoppers, bugs, caterpillars, tomato worms and wire worms.

With the Blue Jay it is much the same as with the Crow. Some are harmful, but the bulk are not. Beal says that they eat many noxious insects; their nest robbing habit is less than what has been asserted of them; and they do little harm to the agriculturist. Bobolinks and Redwing Blackbirds are very destructive in the upper Mississippi Valley, but with us are beneficial.

I have not time to go over a list of birds to be found about the orchard. Blackbirds are to be found. Orioles are great insect eaters, and are especially fond of caterpillars. Beal found that they formed 34 per cent. of the food of the Baltimore Oriole. The Orchard Oriole is less studied but is probably more beneficial. Reports, however, have come from some localities in the State that they are very bad about eating the grapes, and it would be interesting to know if they have changed their food habits.

Meadow Larks are decidedly beneficial. Practically 73 per cent. of their food is insects. The Yellow Hammer and Meadow Lark are two of the most beneficial birds in the orchard. Ground insects chiefly form their food. They should be encouraged in every way possible.

The Cedar Waxwing is largely a fruit eater. It eats mostly wild fruits but also catches many insects. The greatest complaint is on account of its eating cherries.

The Vireos obtain their food chiefly from leaf eating insects, and from those about the blossoms of trees. There are different kinds of these birds, such as the Warbling, the Red-eyed, the Yellow-throated, and the White-eyed.

The Yellow Warbler is common through the summer and there are many other kinds of Warblers found during migration. They eat insects found about the leaves, blossoms and fruits.

Wrens, of which there are four kinds with us, the Carolina, Bewick's, House and Winter, all eat insects about the outbuildings, fence rows and orchards.

Brown Thrashers eat about 64 per cent. animal food, practically all insects, and most of them are injurious. They eat 8 per cent. of cultivated fruits, such as raspberries and currants. They are very useful birds.

Almost half of the food of the Catbird is animal, and is chiefly injurious insects, and the other half of its food is vegetable, about one-third of which is fruits that are or may be cultivated. It sometimes does much harm but can not be called injurious. The damage of this bird can be lessened.

The Brown Creeper, Nuthatches, Chickadee, and Titmice are all very beneficial birds. Most of them work about the trees the whole year through, destroying coumtless destructive insects, their larvae and eggs. The Chickadees are especially destructive of the eggs of the canker worm. The Brown Creeper is very destructive of the moth. Kinglets protect the smaller twigs from their insect enemies.

The Robin is better known than most of our birds. There is a great deal of complaint about its eating cultivated fruits, especially cherries and berries, but in investigating the stomachs of these birds it has been found that there are only four per cent. of cultivated varieties and nearly half of its food consists of insects. They eat more wild fruit than tame.

The Wood Thrush is a very beneficial bird, and frequents the woods rather than the orchard. It eats 21 per cent. of fruit and the remainder of its food is insects.

Blue birds are almost as common as they were seventeen or eighteen years ago. They were almost destroyed by the cold weather in January and February, 1895, but I am happy to say that they are now recovering their numbers. Seventy-six per cent. of their food is insects, and they eat vegetable foods in winter. but there are very few among them that are fruit eaters.

The birds which are generally charged with eating small fruits are the Brown Thrasher, Robin, Catbird, Cedar Waxwing, Orioles, Red-headed Wodpecker, Crow, English Sparrow and the Jay. English Sparrows are noted for taking grapes. It is interesting to observe that these birds which came here without food of their own had to adapt themselves to the food of this country. It has sometimes been said that they eat cabbage worms. This is possibly true. Nevertheless English Sparrows are great nuisances.

Catbirds and Orioles are very bad about eating strawberries. The birds that devour the cherries are the Crow, Common Blackbird, Catbird, Cedar Waxwing, Brown Thrasher, King bird, Red-eyed Vireo, English Sparrow and the Orchard Oriole.

Orchard Orioles and English Sparrows destroy a great many grapes.

Raspberries and Blackberries are bothered by the Bob White, Summer Redbird, Cardinal, Song Sparrow, Field Sparrow, Brown Thrasher, Catbird, Orchard Oriole, Bluebird, Crow, Kingbird, Redheaded Woodpecker and Cedar Waxwing.

Mulberries are destroyed by the Blue Jay and the Crow.

With the exception of a few kinds of birds they are all the farmers and fruit growers' friends. With birds as with men, "He who would have friends must be friendly." He must know the birds, something of their habits, and of their requirements. Naturally they are enemies of the great foes of growing plants—the insects. The fruit grower and farmer should ally themselves with their cause. He should seek to learn every way by which these birds can be protected, and this can be readily done. Our State has a model law for the protection of native birds. This should be enforced in every locality. All mammals that are enemies of birds should be exterminated. This should apply even to cats where they destroy birds. The value of birds to man, because of their helpfulness, their beauty and their songs, should be taught to old and young. The best field is with the young and through the public schools. We should even go farther than to protect them. Birds should be encouraged. They should be supplied with winter food. Shrubbery and other cover should be provided and nesting sites should be supplied. Building material can also be furnished. Fruit-bearing bushes and trees should be planted to supply them with food preferred to the ordinary cultivated kinds. In these and other ways that will suggest themselves our fruit growers can make both friends and partners of the birds.

President Stevens: These papers are very interesting and valuable and should be discussed, but the time is too short to permit, so we will now take up the election of the officers. The first in order is the election of a President.

The Society proceeded to the election of officers, which resulted as follows:

For President, Warder W. Stevens of Salem.
For Vice-President, H. H. Swaim of South Bend.
For Secretary, W. B. Flick of Lawrence.
For Treasurer, Sylvester Johnson of Irvington.

MEMBERS OF THE EXECUTIVE COMMITTEE.

Mr. Edward Y. Teas of Centerville, to serve one year.
Mr. Walter S. Ratliff of Richmond, to serve two years.
Prof. James Troop of Lafayette, to serve three years.

MEMBERS OF THE COMMITTEE ON HORTICULTURE.

First District—W. J. Ritterskamp, Princeton.
Second District—W. C. Reed, Vincennes.
Third District—Chas. N. Lindley, Salem.
Fourth District—W. S. Young, Franklin.
Fifth District—Evan B. Davis, Danville.
Sixth District—Caleb W. King, Richmond.
Seventh District—J. J. Milhouse, Valley Mills.
Eighth District—A. W. Shoemaker, Daleville.
Ninth District—D. F. Maish, Frankfort.
Tenth District—H. W. Henry, Laporte.
Eleventh District—Snead Thomas, Marion.
Twelfth District—J. C. Grossman, Wolcottville.
Thirteenth District—C. W. Foote, South Bend.

President Stevens: Are there any reports of committees to be given?

Sylvester Johnson: I understand the Memorial Committee is now ready to report.

President Stevens: We will now hear the report of the Memorial Committee.

Mr. Kingsbury: Calvin Fletcher of this city, and Jonathan Beard, of New Albany and Jesse P. Elliott of Fayette County, were horticulturists who were well known and dearly loved in their part of the world. They did not care to shine in the public eye, but in their own quiet ways made themselves felt at home, and among their acquaintances. The homes, orchards, vineyards, gardens and small fruit plantations of these three men were models that were an inspiration to all who visited them and were worthy of their ardent emulation. The death of these three men was a sad loss to all who knew them, and especially to all horticulturists.

J. G. KINGSBURY,
SYLVESTER JOHNSON,
MRS. W. W. STEVENS.

Mr. Ratliff: I move that the report of the committee be adopted.

Which was carried unanimously.

Mr. Grossman: I would like to call attention to the fact that we have never gotten rates on the railroads, and I believe we should have a committee appointed and make some effort in this line. We ought to be favored like other societies are. It would make some difference in our expenses.

President Stevens: In a case like this we have to have one hundred delegates, and that many is hard to get.

Mr. Reed: In Illinois we get rates without that many.

Sylvester Johnson: I would like to say a word in regard to the St. Louis Fair. We have heard a great deal said about this, and we are all enthusiastic. We ought to work like Turks and bring Indiana up to the standard. At the World's Fair at Chicago I was made to blush many times on account of the fact that Indiana had no fruit there. We ought to do our duty. I just wanted to mention this before this meeting broke up.

President Stevens: If there is nothing further before the Society a motion to adjourn would be in order.

Secretary Flick: I move you that we now adjourn.

Sylvester Johnson: I second that motion.

The motion was carried, and the Society stood adjourned.

REPORTS FROM DISTRICT VICE-PRESIDENTS.

REPORT FOR SECOND DISTRICT.

Owing to a cold, late spring, followed by killing frosts and drouth, the fruit crop was very light. Apples were about 10 per cent. of a crop, but orchards that had had the best of care gave one-half crop. Peaches were almost a failure except Triumph, Crosby and a few seedlings, which gave one-third crop.

Cherries very light crop; pears not over 15 per cent. of crop; strawberries, all early bloom killed, but late bloom came out and made one-half crop, but owing to lateness of crop and competition with northern berries prices were very unsatisfactory.

Blackberries one-half crop and fair prices; raspberries almost a failure; currants and gooseberries one-fourth crop; prices very good.

The plantings for the coming year in berries not as large as usual. Fruit trees planted the past season in this district not as large as the year before.

The fall has been favorable to ripen up wood growth and trees have gone into winter in good shape and promise a good crop the coming season.

Respectfully yours,

W. C. REED.

REPORT OF CALEB W. KING VICE-PRESIDENT FROM SIXTH DISTRICT.

To the Indiana State Horticultural Society:

In making this, my first annual report, as Vice-President from the Sixth District, I hardly know just how to proceed. Our friend Walter S. Ratliff, who has been deputized to gather fruits from our district for the St. Louis Exposition, and also our able Secretary of the Wayne County Agricultural and Horticultural Society, has had ample opportunity, and will give in his report an able and succinct account of fruits grown in eastern Indiana, so it is not necessary to take up your time with two reports so nearly alike.

Soon after our election I received a letter from Secretary Flick, asking me to put him in correspondence with some of the principal horticulturists of each county I represented and he would write and acquaint them of what would be desired. I also wrote the same parties, receiving answers expressing a willingness to be of whatever service they could. There are but few commercial orchards in central eastern Indiana. The farmers are more inclined to grain and stock raising than to fruits, and the two will not work together successfully, though there are several successful orchards in this locality, where paying crops are raised. The Dougherty orchard near the center of Wayne County is a success. Most of our people are content with a small orchard, a few cherry and plum trees around the yard, merely for domestic use; not enough for the expense of a spraying outfit, so the fruit is generally of an inferior quality.

A great many apples are shipped to Richmond, the principal city in eastern Indiana, largely from Michigan and New York. By consulting wholesale dealers, I find something near fifteen hundred bushels of apples annually are brought to the city from outside of the State. Now this should not be, while most of our land is better adapted to corn and hogs, much of it is so broken and hilly as not to be fit for much else than orchard or timber; a few well cared for paying orchards as the Dougherty orchard spoken of is, could be easily started, and it is to be hoped others may be inspired to do likewise and in the not distant future the Sixth District may boast of its large and paying orchards.

The smaller fruits, such as strawberries, raspberries, blackberries, gooseberries and currants the trade is supplied mostly by home-grown products.

Wayne County, with the exception probably of Marion, has the oldest and largest horticultural society of the State. Her meetings and exhibits, stock excluded, will compare favorably with many of the agricultural fairs of the counties. Our Secretary's report will bear me out in this. Other counties of the Sixth District I do not know enough about to speak of them here. I find by looking over the State reports only two counties take pride and interest enough in their local societies to furnish a condensed report of their doings to the State Society, and have them published along with other reports. I rather feel proud of our own Wayne County reports.

REPORT FOR TENTH DISTRICT.

The Tenth District comprises most of what is known as "The Kankakee Marshes" and Lake Michigan sand ridges. Between these two is a section that is well adapted to fruit. Also south of the Kankakee region is some good fruit land, but as a whole not more than 20 per cent. of the Tenth District is suitable to apple and pear raising and about 30 per cent. would do fairly well for peaches, cherries, and plums, while we have along Lake Michigan a strip of country seventy miles long of somewhat the same condition of land that Michigan has on the east shore of the lake, yet, being on the south side of the lake deprives us of the right kind of lake breezes and has no good effect on the peach crop.

Fifty per cent. or more of this district is well adapted to small fruits. Being close to Chicago market it makes it a desirable location for the raising of first-class small fruits. Laporte and vicinity shipped about 5,000 cases this season to Chicago, besides supplying the local market. All along the lake region a great many berries are raised. Furnessville, Chesterton, Lake and many other places ship large quantities of strawberries to Chicago. The orchards of this district are badly neglected.

H. W. HENRY.

REPORT OF J. C. GROSSMAN, VICE-PRESIDENT OF TWELFTH DISTRICT.

The season of 1903 opened with bright prospects for the fruit grower, but the late, cold spring and the severe freezes the first week of May changed those prospects, for some, to one of disaster.

Apples, pears, cherries, peaches and plums and also the small fruits, were more or less injured at that time, owing somewhat to location and other conditions. Yet there was a fair crop of apples in the district. Late blooming varieties and orchards on low, heavy soil seemed in many places to have escaped the frost entirely. Pears and cherries were almost a complete failure. Peaches seemed to have received most of their injury to the fruit buds early in the winter. Japan plums were in full bloom at time of freeze and consequently were a complete failure.

Varieties of the Damsons, German prunes, etc., in many places were never fuller or of better quality.

Of small fruits, currants and gooseberries were not over one-fourth or one-fifth of a crop.

Raspberries and blackberries, where the canes were healthy and well cared for, were a good crop.

Strawberries, the crop that is grown and depended upon by the farmer and fruit grower for the money there is in it, more than any other fruit crop in the district, was above the average with those growers who mulched heavy and left the mulch on late; others who did not mulch or uncovered early had their crop damaged from 25 to 75 per cent., according to conditions.

Prices on small fruits were higher than for many years and fruit of all kinds in heavy demand.

There were a good many second-crop strawberries again this year. Nick Ohmer's that bore a fair crop of fruit in fall of 1902, bore a good crop again in June, and were bearing again this fall. I do not think the crop was lessened any by the fruit they bore last fall.

Plantings of fruit remain about normal; if anything it is on the increase.

Farmers do not seem to care to bother much with more orchard than just what they need for their family use. There are a few exceptions, however, and in the future we will hear from them.

We have used our influence, whenever and wherever possible to increase the interest and membership in the State Society. Where we could not reach or see fruit growers personally we have done what we could by correspondence. The Noble County Horticultural Society and the Lagrange County Agricultural and Horticultural Society are each in a prosperous condition and both are doing good work in building up horticultural interests that will be apparent in the future.

REPORT OF THIRTEENTH DISTRICT.

The season of 1903 gave us an illustration of how the promise of the springtime may fail in the harvest.

The season opened full of promise for a bountiful crop of fruit, nearly all the fruits blooming profusely, but a cold wave at the height of the blooming season destroyed in one night all our bright prospects. The apple, however, escaped serious injury, the buds were not far enough advanced to be affected and in the northern counties especially the crop was excellent, both in quantity and quality. Pears and cherries were farther advanced and suffered to such and extent as to amount to almost a total failure throughout the district.

Very much to our surprise, peaches, which we thought of course were all killed, developed at least a half crop in the northern counties and some fruit throughout the district. This may have been due in part to the fact that the fruit was formed but still enclosed in the husk at the time of the freeze. The same condition existed with many of the plums, which in favored locations produced a fair crop. Grapes, which were just budding, bloomed very sparsely and yielded the lightest crop in many years. Whether this was due to the frost is a question, as the climatic conditions were unfavorable for the grape throughout the season.

Blackberries were nearly a full crop, but raspberries, currants and gooseberries were practically a failure.

The strawberry again demonstrated its ability to produce fruit under very adverse conditions. Not only were the open blossoms all killed but the newly-formed fruit and a majority of the unopened buds which were above the ground were blackened by the frost, and yet when the harvest came there was a full half crop of berries of good size and very fine quality. Nor was this all. In nearly every case where the fields were held for another year's fruiting and properly cultivated, with the new growth came an abundance of bloom and a second crop of berries; not a few scattering berries but enough to be very much in evidence in the South Bend market. One grower sold nearly $100 worth of fruit from one and three-fourths acres. This abundant crop of fall strawberries this year and last has led some unscrupulous dealers to offer autumn bearing strawberry plants for sale at extravagant prices. It is, however, the result of conditions and has nothing to do with varieties, except that the most prolific varieties are usually the best for fall fruiting.

One very noticeable feature of the season was that the effect of the freeze was less in the extreme northern part of the State, due undoubtedly to the influence of the lakes.

H. H. SWAIM,
Vice-President Thirteenth District.

REPORTS OF LOCAL SOCIETIES, 1904.

REPORT OF SECRETARY OF WAYNE COUNTY HORTICULTURAL SOCIETY.

To the Indiana Horticultural Society:

I hereby submit this, my annual report of the Wayne County Agricultural and Horticultural Society which is held in or near Richmond, Indiana, on the second Saturday in each month. During a portion of the year, these sessions are held in the horticultural room in the County Court House, but the summer meetings are usually held at the home of some of its members or at some of the public parks. The annual dinner, held in February, is one of the principal events of the year, and hundreds of the members with their families partake of the bountiful repast. Premiums are previously offered for best roast turkey, pigs, pork, ducks and chickens, large cakes, pies, breads, doughnuts, etc., which are passed upon by appointed committees before being placed on the dining-room tables.

At the summer outdoor meetings well-filled baskets are taken and the day is pleasantly spent free from the cares of the home and its surroundings.

OFFICERS FOR 1903.

President—Caleb W. King.

Vice-President—Elim Osborn.

Recording Secretary—Walter S. Ratliff.

Treasurer—T. E. Kenworthy.

Corresponding Secretary—Hon. J. C. Ratliff.

Executive Committee—Caleb W. King (ex officio), Hon. Joseph C. Ratliff, Jehu P. Norris, Eli Jay, Hannah C. Grave, Mary Dickinson and Essie Burgess.

The times and places of meeting and the essayists for the same are arranged by the Executive Committee, and the sessions are intended to instruct and entertain all those who may come, not only in horticulture, but other subjects, as our members are representative of many industries.

The articles on our exhibition tables are quite interesting, embracing the products of farm, orchard and garden. These are usually the best obtainable, and act as a stimulus to renewed effort to others in like pursuits.

The essayists treat of such subjects as pertain to the common interests of all, and being from our ablest local writers, the addresses are published in our county newspapers for the benefit of the public in general.

Annually, the names of some of our members are inscribed on the Roll of Death, and we deeply realize the loss sustained the past year of several valuable members, who have been taken from our midst.

FRUITS.

With fruit trees in an excellent bearing condition, much anxiety was felt during the winter and early spring that nothing would interfere with a good crop of fruit. But the May 4th freeze was too much. The fruit buds that were mostly open were almost totally destroyed and all hopes were for a time abandoned. Latent buds put forth, giving a new set of fruit on our trees, canes, vines and plants. The amount of bloom was far less than at the first, and a much lighter crop was gathered.

Although our peach trees ripened but an occasional peach, yet the trees are healthy and many young trees are being set, so that when conditions are favorable they will be ready to yield a good crop of this delicious fruit.

A much larger amount of apples were grown than was expected. Although but a few summer varieties did well, the autumn and winter sorts were fairly plenty. Exceptional orchards did well, and much fruit has been shipped to other cities and states. Several new orchards are being set, embracing most of the standard varieties, a majority of which are known as winter ones, so that in the near future it is hoped this county will be able to supply its immediate demands from its own bearing-trees.

An almost total failure of the cherry crop, which was chiefly due to the May freeze that killed most of the fruit buds that were at that time so far advanced. Some trees, however, fruited fairly well, but the insects and our native birds took most of them. Many new cherry trees are being set in door-yards and gardens, chiefly the Early Richmond and Montmorency.

Scarcely a plum in most orchards. A few fruit men had a fair yield from some of the Damson trees that have so far escaped the black knot. But little planting of these trees of any variety in this locality has been recently undertaken.

But few trees yielded crabapples this season, and with fruit that was very imperfect and wormy. For several years the demand has far exceeded the supply, and many bushels have had to be shipped to our markets from other orchards.

Although the quince is of secondary importance to our fruit calendar, yet our stock of jellies, marmalades and honeys seems incomplete without this friut, and it is unfortunate that the hardiness of the quince trees is such as to withstand only ordinary winters.

Small fruits are extensively grown by some, but the opening for enterprising fruit growers is ample and should be encouraged. Blackberries and raspberries were not so plentiful, owing to the summer's drouth, as a large portion of the fruit dried up on the canes before it could mature. Dewberries are almost unknown to this locality, and where an attempt as been made to grow them, it has nearly always proven unsatisfactory.

The vineyard does not receive the attention that was formerly given it, owing to the killing back by winter of the vines, and the ravages of the English sparrows and the berry worm in the bunches of the grapes. Sacking has proven successful, but the sparrows are learning to tear the sacks and devour the ripe bunches within.

Strawberry plantations are fewer and more extensive than formerly. More attention has been given to the methods of cultivation and marketing by the larger growers and their labors have been most satisfactory. A fewer number of varieties are grown and marketed to the satisfaction of the trade. This does not affect materially the extent of the season of berrying, but makes the season heavier while it lasts.

There are no doubt ample opportunities for individuals to engage in fruit culture in this section, as the demand far exceeds the supply, provided the grower has the ability to practically undertake and manage the business, and then, too, provided the soil and location are suitably adapted to growing the kinds of fruits selected.

REPORT OF THE LAGRANGE COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Agricultural and Horticultural Society of Lagrange County is in a flourishing condition. We have a paid-up membership of over seventy-five heads of families; this makes us, with wives and children, over two hundred members.

The children take quite an active part in the work. We held six meetings during 1903. All at the country homes of members, except one in a grove. The meetings were largely attended and much interest manifested.

Last year we did not have a year book, but saw the need of it, and are getting one out for 1904.

We sent a delegate (J. W. Mills) to the State Board of Agriculture, Mrs. O. A. Lampman to the summer meeting of the State Horticultural Society, Messrs. Bogue and Lowe to the State Fair with the county exhibit, R. C. Case to Kendallville fair, with county exhibit, and Miss Mary Grossman, Mrs. E. C. Wemple and Henry Eshelman to the Indiana State Horticultural Society.

The society received third premium at the State Fair, and in competition with Noble County at Kendallville fair received second premium.

The society has the honor of having the largest membership to the State Horticultural Society of any society in the State. J. C. Grossman has worked hard to give the society this honor and should receive the credit.

The society has made a number of exhibits and paid premiums on the same.

The society is in good financial standing.

J. C. GROSSMAN, President.

MRS. LIZZIE C. ROYER, Secretary.

REPORT OF NOBLE COUNTY HORTICULTURAL SOCIETY.

Dear Sir: The Noble County Horticultural Society, beginning December 11, 1902, and ending December 11, 1903, added forty persons to its list of members, increasing our total enrolled membership to two hundred and fifty.

It held six regular meetings during the year. Five of these were held at the homes of members, and one, the annual business meeting, was held at the opera house, Albion.

Our society was organized in 1897 with just enough members to perfect an organization. Since which time it has steadily grown in numbers until now we have the proud distinction of being the largest horticultural society in the State with a popularity extending far beyond the boundaries of Noble County. Our society has never confined its discussions to the field of production alone. The field of selection, planting, care and cultivation of small fruits, vegetables and flowers have been carefully considered and elaborated upon at our various meetings. The selection of varieties suitable to our soil and climate, nomenclature, and the growing of peaches, pears, plums, cherries and especially apples have been given a large share in our discussion, with the gratifying result that better methods and a marked improvement along all these lines is apparent. The social side of life has not been overlooked; papers and essays have been given at our meetings that would do credit to State or other meetings of much larger pretensions.

Speakers of State and national reputation have honored our society by their presence at our meetings, and aided us materially by discussion along lines of production, economic science and morals. Even the subject of psychology has had some thought. Socially our society is fast becoming a leading factor. The generosity of our members in entertaining the large and increasing numbers that attend our meetings, elicits unbounded praise from all who attend our gatherings. In fact, we have quite reversed former rules of society; it used to be considered a gain to get into city society; now the city people come out into the country to attend our meetings and join our society. Our several exhibits of fruits at the State Fair have served the purpose of advertising the fruit resources of our county over the State, and our third show of fruits, vegetables and flowers at the Kendallville fair received a far more liberal support from the farmers of the county than ever before.

In addition to the regular work of the society, we have during the past year held a two-days' horticultural institute at Wolf Lake, receiving a royal entertainment there, gaining several new members there, and a standing offer to return.

The work of apple growing, onion growing, and social and economic life on the farm were the leading subjects considered.

An entire session was devoted to horticultural work at the supplemental institute held at Avilla, and members of our society were given a large share of the work.

The opportuntiy in our society for practice in literary work and study of parliamentary usages is an advantage not to be overlooked.

The election of officers resulted in the re-election of the entire force of last year: J. C. Kimmel, president; C. L. W. Harvey, vice-president; J. W. Moorehouse, secretary; George Feebles, treasurer; and W. W. Carey, D. K. Hitchcock and Rev. Wm. Talbot, executive committee.

FINANCIAL REPORT.

Receipts.

Dec. 11, '02, balance on hand	$108 97	
1903—Dues received	41 00	
Advertising	147 65	
Premium Kendallville fair	25 00	
Miscellaneous	17 65	
Total		$340 27

Expenditures.

Premiums paid	$36 75	
Printing	104 60	
Delegate to state meeting	12 65	
Prof. J. Troop, expense	8 00	
Secretary's salary for 1902	20 00	
Postage and stationery	10 17	
Miscellaneous	27 76	
Total		$219 93
Balance on hand		$120 34

J. W. MOOREHOUSE,
Secretary.

IN MEMORIAM.

JONATHAN BEARD OF FLOYD COUNTY.

One of Floyd County's best known, most upright and conscientious citizens, Mr. Jonathan Beard, passed out of life on Wednesday evening, July 8, 1903, at 5 o'clock. His age was seventy-three years, and he is survived by his faithful, devoted, accomplished wife, and one son, Maynard C. Beard. Funeral Friday afternoon at 2 o'clock from the family residence near Edwardsvile, with burial at Wolfe's graveyard.

Jonathan Beard was born and reared on the old Beard farm in Georgetown township, near Georgetown. His parents were pioneers of Floyd County, and he came from a family distinguished for the honest, upright traits of the pioneer period of the county and State. He inherited all these best traits of character. Conscientious and of fixed principles he lived the life of an honest man and won the respect of all with whom he come in contact. So living, death had no terrors to him when it summoned him into the beyond.

Closely identified with the agricultural interests of Floyd County and southern Indiana, he was always in the lead in promoting the organization and prosperity of agricultural and horticultural societies. He served as a member of the State Agricultural and the State Horticultural Societies; he was identified with all the district societies in southern Indiana, and was active in the organization of the Floyd County Agricultural and Horticultural Society, now one of the best established and most useful and successful local societies in the State. He never tired in his labors for the promotion of the agricultural and horticultural interests of the county, and particularly of southern Indiana.

His beautiful farm and residence near Edwardsville are models of his skillful culture. His fruit bore the highest grade of any grown in the county, and the home and farm were often visited by many of the leading citizens and officials of Indiana, and he had the respect and admiration of the leading farmers and fruit growers of the State and county.

Mr. Beard was a charter member of Georgetown Lodge Free and Accepted Masons, as faithful to the principles of that ancient and honorable order as he was in all things else. But it was Mr. Beard's request none of the orders of which he was a member should make a public demonstration at his funeral, and the members of the Masonic Order attended as friends. The religious services conducted at the residence by the Rev. Mr. Fowler, of Crandall, an old friend of the family.

Mr. Beard will be missed from the social and business circles he has honored. But the bereavement that comes to his wife and son is inexpressible. He was a devoted husband, and an affectionate father, and this means much to the bereaved ones.

JESSE P. ELLIOTT, OF JENNINGS TOWNSHIP, FAYETTE COUNTY.

This enterprising and progressive farmer was born in Bracken County, Kentucky, August 19, 1826, and died October 28, 1903. When seven years of age his father, John Elliott, moved to Union County, Ind., where he lived five years, after which he settled in Jennings Township. Jesse Elliott, up to his eighteenth year, lived on the farm, attending the district school in winter and working on the farm in summer, thus obtaining a good practical education. He was married March 9, 1847, to Nancy Hulgan. This wife died in 1853. He was again married to Margaret Darby in 1855. For seventeen years Mr. Elliott operated a saw mill in Fayette County. In 1861 he purchased a farm, the one on which he died. He was eminently successful as a farmer and horticulturist, owning several hundred acres of well improved land besides other property. Mr. Elliott was an uncompromising Republican, possessing good business ability, far-seeing in all his dealings, a staunch advocate of good roads, strictly honest in all his business transactions. A useful and honest man has gone to his reward.

MILTON TRUSLER.

PROCEEDINGS OF

District Horticultural and Good Roads Institute.

(HORTICULTURAL DAY.)

HELD UNDER THE AUSPICES OF PURDUE AGRICULTURAL SCHOOL,
NEW ALBANY, IND., SEPTEMBER 4, 1903.

The meeting was called to order at 9:30 a. m., by the chairman, Professor W. C. Latta, State Superintendent Farmers' Institute, Lafayette, Indiana.

The order of exercises was then taken up, the first being, "Conditions of Success with Small Fruits."

Mr. George B. Harrell, of Duncan, who was to have presented a paper on Strawberries, was unable to be present, and Mrs. Ed. Fawcett, of Floyd County was called upon to lead the discussion of this fruit. Mrs. Fawcett addressed the meeting as follows:

Mr. Chairman, Ladies and Gentlemen—I will take for my subject this morning, "An Acre of Strawberries, and How I Grow Them."

I should begin by selecting my piece of ground, and I should like to prepare this ground two years before I set it in strawberries. I should begin with a rotation of crops, of something from which I could get two crops a year, such as potatoes, onions and cabbage. Then, in the fall before I am ready to set my strawberry plants, I would subsoil this ground about sixteen inches deep. Some ground does well without subsoiling, while others do much better with it.

When we subsoil, we pulverize the lower stratum; thus creating a reservoir of water under the plants, which will carry them through the long drouths. You will remember what a dry fall we had two years ago, when there was no rain from the Fourth of July until October. That season I set an acre of strawberries, for which I had subsoiled the ground, and that acre of strawberries made very good rows, although there were a number of patches in my neighborhood that never put forth a runner nor made a plant. In the spring, as soon as the ground will work well, I would take a disk harrow and break the soil up well. Afterwards, with a harrow and a drag, or a roller, or both, I would pack the soil thoroughly. You will not have good results in setting plants in a loose soil.

The ground being thus prepared, I will select the plants. I shall not dwell long on the varieties I should set, because I do not indulge in many varieties, but stick to what I have tried until I know there is something better. I set Clyde and Haverland for early; Senator Dunlap for medium, and Sample and Gandy for later. The time has come when we should raise for quality rather than quantity. I set by a line about 18 feet long. We put this line on the ground, and it has two little poles, one at each end, and we are very careful to keep this line straight. Care should be taken to set the pistillate varieties between two good perfect flowering varieties, so the latter will pollenize the pistillate varieties. I set the rows four feet apart, and the plants twenty inches apart in the row.

We find there is a great deal of work in the cultivation of strawberries—every weed must be taken out of the patch. I begin to cultivate as soon as I get through setting, and keep it up until October. I cultivate after every rain, as soon as the ground will enable me to do so. I never cultivate deep next to the plant, but deep in the center of the rows.

In cleaning out an old patch, several methods may be pursued. I take a two-horse cornplow, and set the two inside shovels twisted, so they will throw about an inch of soil on the row; then I take a drag and drag it down. Afterwards I take a harrow and cross the rows, which will almost level the ridges. This must be done immediately after burning the patch off.

Now, as to picking our berries. We pick in quart boxes, and we have "handles" that will hold four boxes. When a gallon has been picked, the picker will call out "box," and our carrier will take it up, giving the picker a gallon ticket for it. It is then taken to sheds near our patch, in which we pack our berries. We do not have pickers enough in our county, and are therefore sometimes obliged to send to Harrison County for pickers. We depend upon the school children for a great deal of our picking; and when the schools were not out till late this year we found we were short of pickers; but still we were fortunate in having the few we were able to obtain, energetic pickers; the berries were large, and eleven pickers picked fifty-nine cases in one day. We found with our eleven pickers, on that occasion, we did more work than we sometimes accomplished with twenty-five or thirty. But we generally depend upon the city children to pick our berries.

I keep all varieties separate, and mark the name of each variety on the crate. In picking it is very essential that the berries look nice, and that they are not packed so tightly as to mash the berry, as we place one box on top of another, and I find in getting them to their destination, if they are tightly packed, the skin is often broken and the juice will run out, and one berry thus mashed may spoil an entire crate.

Our principal market this year was Indianapolis. We did not send very many berries to Chicago this season. The markets vary in different years, and some years they are much better than others. Indianapolis was a very good market this year.

I have made no preparation for this article, having had no opportuity to do so, but I want the fruit growers of southern Indiana to participate in the good to be achieved by the cultivation of this berry. I have heard a number of Indianapolis people praise the southern Indiana berry very highly, and they have acquired quite a reputation in Indianapolis. The people there scramble to get our berries, and I am proud of southern Indiana.

Now, I might say further, that I mulch as soon as the ground freezes. Deep mulching keeps the plants from heaving in the winter and will protect the berries in the early drouth and cause them to burn better.

Strawberries have been a great benefit to this community. The culture will give employment to every man, woman and child who wishes to work. In 1901, which was the last year we had a full crop, three of my neighbors and myself paid for picking strawberries alone the sum of $1,440.00; and there are a number of others in this locality who grow as extensively as we do.

Eight years ago, when I bought my small place, going in debt for the greater portion of it, my friends told me it was foolish of me to set strawberries when nearly everybody was quitting the business. I remembered then, what our late Governor Mount said at one of our Institutes in regard to sheep raising. He said, "The time to buy is when everybody wants to sell; and the time to sell is when everybody wants to buy." I am glad to tell you that I have been successful in those eight years.

Now, I do not want to mislead anybody here, and cause him to think that all he has to do is to set a patch of berries and get rich; for there is great expense in getting a crate of berries to Chicago, and that is the market upon which we must depend.

I will give you the items of expense on a crate of berries from Duncan to Chicago, beginning with the first thing we have to buy, which is the crate, 16 cents; picking, 36 cents; shipping, 32 cents; cartage, 2 cents. If the crate sells for $1.00, commission will be 10 cents. Total expense of shipping, 96 cents, which leaves us four cents per crate for our work and other small expenses.

Moreover, we can not do with our berries as the farmers do with their corn, wheat and potatoes. If the market price does not suit them, they may store their product away for better conditions; but we are compelled to let our berries go into the market, unaware of what we shall receive as compensation until we get our bill of sales, some three or four days after we consign our berries.

Then, of course, the elements of rain and snow, and of frost, have considerable to do with our success, and affect it very materially. We find the frosts in the spring often kill our plants, and we are always glad when we do not have that misfortune to contend with.

I believe that is all that occurs to me now, but if you will ask any questions, I may perhaps be able to answer them better than I can talk.

Question: How wide apart do you place your rows?

Mrs. Fawcett: Four feet apart, as a general thing, but this year there was a very luxuriant growth, and we thought perhaps if they were farther apart it would be better. As a general thing, however, four feet is enough.

Question: Do you trim the plants of suckers?

Mrs. Fawcett: Not very much. Some varieties make more suckers than others. The Senator Dunlap made a great many runners, and we thought that perhaps if we had trimmed it, it would have been better.

Dr. Wolfe: Mrs. Fawcett, can you not grow better plants than those you buy?

Mrs. Fawcett: I do not think so. I think the one we set out is the best. A pedigreed plant is the finest plant there is.

Mr. Burton: Suppose I want six plants to the foot—had those plants better be set out six at first to the foot, or one to the foot and grow the other five from the runners?

Mrs. Fawcett: One should be set out, and the other five will grow from runners.

Mr. Burton: In a strong plant had you better set out six to the foot, or set out one and grow the other five from runners?

Mrs. Fawcett: It is this way—it depends upon what you want to raise. If you want to raise plants you set closer. And it depends upon the soil, too. In our soil we want to shade the ground as far as possible, and if you plant too far apart it becomes dry with the evaporation that is going on all the time. If you shade the ground you get better fruit. We do not want the plants matted too close together, but we want them close enough to keep the ground shaded.

Mr. Burton: What I mean is this. I do not think it is necessary to set the plants closer than three feet, for I find they always close up, and the plants that grow there are better than the ones I might plant.

Mrs. Fawcett: That is all very well sometimes, but suppose you plant three feet apart and a couple of plants should die, and your plants are eight or nine feet apart, and you can not get runners enough to fill their place. The profit in strawberries is in having a row very perfect, with no breaks. I find it is better to plant a little closer.

Chairman Latta: May there not be something in the soil which governs the extent of running?

Mrs. Fawcett: A great deal depends upon the soil.

Mr. Ritterscamp: And there may be something in the variety of plant. Mr. Burton may have plants that have a tendency to make more. The Pride has a tendency to make more plants, and the Crescent and many others would make more than the Clyde and Bubach.

Chairman Latta: Then you favor a thicker setting than Mr. Burton practices?

Mr. Ritterskamp: That is according to the variety. The Crescent will make six plants where the Clyde makes one, or the Bubach either. I set farther or closer according to the variety and the natural tendency of the plant to send out runners. We like the Crawford very much; but right now I should like to ask Mrs. Fawcett in regard to the shading of the Bubach. Do they turn purple with you as they do with us? We find they are apt to turn purple and get mushy and soft.

Mrs. Fawcett: We never found them that way. We are very fortunate in being able to ship them to a close point like Indianapolis, where they arrive the same day they are shipped and can be immediately placed on the market.

Mr. Ritterskamp: Do you pick in the mornings and ship in the after noon?

Mrs. Fawcett: We pick all day sometimes. Pick in the afternoon, too. And I remember one day when it rained very heavily in the morning and a wind came up and blew everything dry, we went out in the afternoon and picked. We never pick the berries when they are wet.

Chairman Latta: Will Mr. Ritterskamp state his experience?

Mr. Ritterskamp: I am using nitrogen as manure, and it seems to make the berry softer than on new soil; and I find that the Bubach, within an hour after picking, will turn a slick, ugly purple, somewhat similar to the Snyder blackberry. I pick them early in the morning.

Mrs. Fawcett: You ought not to pick your berries with the dew on them. We wait many hours for the dew to dry off them before picking. Never pick the berries when they are wet.

Dr. Wolfe: I want to raise a question of something that is not exactly connected with this subject, and is yet very closely allied to it. I want to do it because I know Mrs. Fawcett is interested in the matter. The theme this morning is the conditions of success with small fruits, and in that connection, I notice by the eastern papers, and especially the Rural New Yorker, that there is an organized raid being made on the birds on account of their destroying small fruit. I presume they do not operate so severely on the strawberry as on the other small fruits; but Mrs. Fawcett being a particular friend of the fruit, and also of the birds, I want to ask her if there is any justification of the raid made on the birds in connection with the destruction of strawberries, and perhaps other small fruit. I should be glad of an expression on this point, because there has now begun a decided raid on the birds in the East on this account.

Mrs. Fawcett: We never find the birds hurting anything in our strawberry beds. We are not grape growers, and I have heard something of the birds giving some trouble in the vineyards. I have heard some complaint of the red bird—the Scarlet Tanager, as it is called; but you will find that statistics show that the birds do you a great deal more good than they do you harm, even in eating the grapes.

Every bird has its particular work to do. The nighthawks flying over our skies eat mosquitoes, and if we should protect them more, we should not have so many mosquitoes to trouble us. The cuckoo eats caterpillars; and the ferarro I saw one day with a cricket in its mouth, feeding its young, and the cricket seemed almost as large as the bird. Yes, indeed, I think the birds do us very much more good than harm, even if they do take pay for their services of some of our small fruits.

Mr. Cravens: I should like the lady or gentleman to answer two questions—first, as to the depth they plant these strawberries, and the next, as to the varieties for family use—not marketing; some of us do not engage in that business, but we are all interested in the berries for family use. What are the best varieties that extend from early to late in the season? But first as to the depth. How do you set them out, Mr. Duncan, to insure general growth and good bearing?

Mr. Duncan: The plant has to be just above the top of the ground; it is owing to the size of the roots how deep they are to be set—two and a half or three inches; the crown must be at the top of the ground. They must not be in a basin; they should be planted on level ground.

Mr. Cravens: Now the succession of fruits to last a family during the season. I ask for the best that you would recommend for an individual, private grower.

Mr. Duncan: That is a hard question to answer. I believe, for family use, I would set out the Crawford first; then I would come in with the Haverland a little later, and I would take the Gandy as a late berry.

Mr. Cravens: Now, Mr. Fawcett, will you change that?

Mr. Fawcett: I understand you want a succession that would be desirable for family use. That would be a little difficult to decide upon, for you want to consider quality when it comes to a berry for strictly family use. You want what is good, what is excellent, when you are planting for yourself. In that case, the early berry I would plant would be the Excelsior; it is a new variety, but it has fruited and has gone before some of the other varieties come; it is a fairly good berry. The Crawford will come next as a good berry. That is a very fine variety, and you can plant them a little farther apart. You will have to be careful about their getting too thick and in your road; they will not produce many berries if they are a perfect mat. Then the Clyde is a good berry for market or home use, and the Bubach is as good. By the time they are gone you can have the Gandy. Now in regard to planting, if you make a little basin, or the ground is hollow, if there comes a good, hard rain, the dirt will wash in and cover the crown, and it will rot. When you receive your plants for setting, do not dampen the leaves, especially if you have to hold them over a little before planting; you may dampen the roots if necessary, but never dampen above the crown. We want this ground as level as it can be gotten. If you make a ridge the roots spring apart and separate, and the moisture escapes. You want it as level as possible, so the moisture will not escape. If you get it on a little ridge and go to working it, you are apt to plow the dirt away from the roots.

Mr. Cravens: Now of this catalogue you gave us. Are they perfect berries, or do they need others to set out with them for fertilization?

Mr. Fawcett: You won't need any if there is enough fertilizers to fertilize these other plants. I should like to ask Prof. Troop, now, in regard to the fungous growth and the spraying of plants. Some years ago we had a great many of what is popularly called "buttons" on our plants. Some say it is caused by a little freeze in the spring that tends to freeze the ends of the pistils so they will not fertilize, but I do not believe that is the case. On my place today you can find blooms and buttons there, on plants that have never had a cold wind on them; and my opinion is that it is a fungous growth, because some of the pistils, may be only two or three, look like there is a fungous growth. What causes this fungous growth, and I want to know when to spray, how to spray and what to spray with.

Prof. Troop: I never had any experience with the fungous growth. We had a great many of those button berries this year, but that was principally due to the freezing weather at the time they were in bloom. We lost probably fifty per cent. of our crop by the frost, just after the first bloom was out, and a good many of the later ones were "buttoned." On that account they could not be properly fertilized. Of course every pistil must be fertilized or you can not get an entirely perfect bloom. I never had any experience with a fungus causing that appearance. It is possible that may be the case, but I have never seen nor heard of the like before. If I were going to spray for it—and that would not do any harm—I would use the Bordeaux mixture previous to the appearance of the bloom. If there were any fungus there, that would tend to kill it; it is due to imperfect fertilization, as a general thing, and thripps may have had something to do with this, by eating the ends of the pistils off, so it could not be fertilized.

Mr. Fawcett: What would you do with the Bourdeaux mixture to kill both the thripps and the fungus?

Prof. Troop: I would mix Paris green, or any of the arsenates with the Bordeaux.

Mr. Fawcett: Would kerosene answer the purpose?

Prof. Troop: I wouldn't use kerosene on strawberries very much.

Mr. Ritterskamp: I believe at that time of year there are so many showers that it would not do much good unless you sprayed every third day. As to a late variety, I find the Sanford is about the best, and it will yield as late as the Gandy. My soil is clay, as stiff as Floyd Knobs. I judge. In regard to mulching, on a hard, rocky soil, how many loads would you put on per acre. or how deep would you cover?

Mr. Fawcett: If you want late berries you will have to mulch it heavy. The most you want is enough to shade the ground to keep the plants from spewing out. We put on a thin mulch to shade the ground.

Chairman Latta: We have now used the full time allotted to the strawberry, and call for the next subject, which is "Raspberries," to be presented by Mr. U. M. Stewart, of Madison, Jefferson county.

Mr. Stewart: Mr. Chairman, Ladies and Gentlemen—I judge the raspberry is not so popular as the strawberry, and usually there is not so much money made on it per acre; but it is a berry more easily grown and will stand longer when it is set; and it has so many delicacies made from it, and is such good eating fruit, that I think it deserves more favor. It is not as showy as the strawberry, and is a little more seedy, but I do not know of anything that is relished more than a black raspberry pie or a red raspberry shortcake. It is a typical fruit for jellies, also. I do not know of anything more refreshing, or that I remember with more pleasure, than a good raspberry sherbet. When we think of these things we may well say the raspberry is entitled to a place. And then it comes to us in the open space between the strawberry and the blackberry, and it has its place on that account. When you plant raspberries, choose a soil that is light, rather than heavy, and with lots of vegetable matter in it, to hold the moisture and that will not bake and get hard when tramped by the pickers. We like that kind of soil, because it will make the best growth; and it will hold more water and grow more tips. That is the kind of soil I should like to have, and I should want it level or nearly so. Not so rolling as to wash. We can not break ground for from five to eight years after the plant is set, and the cultivation is entirely surface cultivation. If the ground is sloping, heavy rains wash off the loose soil and the plant is left standing on a little ridge. Therefore, we like to have the ground level.

As for the planting. Plant them in rows seven feet apart, either for red or black raspberries, and about three feet apart in the row. We plant in the spring in preference to the fall, because it requires less labor to cultivate and keep the rows clean and requires but little hand hoeing. If the plants are of our own growing and at hand, we prefer to plant after the tips are started; and the ground should be loose and fine. Set the plants with the dirt clinging to them, as you set tomatoes, and they will grow right on. The finest growth we ever had was in that way. Here is a specimen [showing one in hand] that is a fine growth for so early in the fall. Get, them in that form, and set them out early.

As to cultivation. The best tool I know of from recent experience is a cultivator with several shovels in a V shape that will throw the dirt away from the plants; and I should like to have one wide enough to extend from one row to another, and let the horse walk between or in the middle, so the berries will not scratch the horse nor driver. That V-shaped tool will throw the dirt out and then we have a harrow that will push it back. Begin as early in the spring as the ground is dry enough to work. We cultivate up to the first of August, when we stop. The surface should be left as loose as possible, late, so the tips can take better hold. Last year we sold thousands of plants and never had to bury the tips. Much depends on whether they are strong growers or not. The Kansas makes lots of plants, like the Crawford strawberry. The Gregg is subject to disease, and is not a strong grower, and there is not much profit in it. The Kansas, even if it gets broken off, puts forth many more plants. It is a strong grower.

In the picking of raspberries we use buckets in preference to boxes; for if we gather them in boxes we do not get the chance to pick them over and see that there are no leaves or dirt in them, which often occurs when there is a large body of pickers. We use five-quart buckets for black raspberries, but not that large for the red; they are not so strong. Probably the Cuthbert might stand it, but it would be hard on that. The raspberry flattens down in the picking, because the inside is hollow, and we use these buckets because we get better measure from pickers.

For the packing we formerly had sheds in the field, but lately we have used large, covered spring wagons. We think we get better results that way.

As to the varieties of the black caps, I have the Gregg, the Kansas, and some Ohio; of the red, I have the Cuthbert, the Miller, the Turner and Louden. The Miller and Louden haven't fruited much yet, but the Turner has lasted with us for six weeks. It comes pretty early, and lasts late.

Question: Isn't it a small berry?

We do not consider it small. It may be on poor soil, but we have it on good ground, and it makes a berry not quite so large as the old Cuthbert, but it is of a good, marketable size.

Mr. Duncan: What is your idea of setting them seven feet apart in the rows, or rather, setting the rows seven feet apart, and the plants three feet apart in the rows. Would it not be better to set them closer row to row, and also closer in the row?

Mr. Stewart: No, the raspberry will grow up say four stalks to the hill. In the strong growing plants we always pinch the tip when it gets up this high, and that lets the plant bunch out, and these branches will go out into this seven-foot space. In the spring we cut back all these little ends, so as to have room to cultivate them with more facility. I have set closer than three feet in the row; but the raspberries are like the strawberries, some make a bigger growth and fill up more than others.

Mr. Ritterskamp: Would a straw mulch take the place of cultivation on a small plantation?

Mr. Stewart: That would do very well, I think.

Question: When do you cut the old wood out, in the fall or in the spring?

Mr. Stewart: I never found it practicable to cut the old wood out until spring. It is this way. When we get done picking, the bushes have grown out so far that if we cut the old wood out then we would have to carry it out in our arms or damage the bushes. Most people say, "Cut out the old wood as soon as you are done picking," but I do not see how you are going to get it out, if you have long rows, without damaging the bushes.

Mr. Hester, Floyd County: The red raspberry at my place is subject to a worm working on the stalk, and it is killing the entire patch. This is a little worm, very small.

Prof. Troop: Whenever that gets started in the stem, the only thing to do is to cut out the stem and burn it while the worm is still in it, and thus hold it in check. It can usually be prevented by spraying with Bordeaux mixture and using Paris green with it. If this is done early in the spring, and thoroughly, there is not much danger through cane borers.

Mr. Hobbs: We practice cutting out the cane immediately after the crop is matured, for two reasons: The chief obstacle to the raspberry is the *anthraxnose*, and this is carried over with the old canes, if left till spring, and perpetuated with the new, and as soon as we get them away from the old stem we do so, and we think the sooner the better. Immediately after the crop of fruit is removed, we go through the rows with shears, having handles two and one-half or three feet long; and cut them out. A man can get the shears in easily among the canes and clip them off; another man follows with a fork, and two or three rows are thrown together; and a narrow sled with high standards is brought along. The rubbish is thrown into it and hauled away to a place where the canes are burned. We get rid of the anthraxnose thus, and also destroy any insects that may be in the cane, and the young canes have a better opportunity to develop into branches. We have pinched back the present season's growth to 18 to 20 inches high, making low plants.

Mr. Ritterskamp: We find that right after fruiting, before the tips of the cane take root, there is still considerable sap left in the cane that has borne fruit. We use a clipper and cut it then, because in the spring it takes considerable more muscle and time and strength, when the cane is hard. But I should like to ask Mr. Stewart in regard to his tools. I know of one or two planters—the Georgia and the Iron Age; but I would like to know where he gets a seven-foot tool?

Mr. Stewart: We made it. If you have the standards on your old cultivators, use them, and make a frame to put them on. Sometimes we can not find the tools that we need on the market, and have to make them.

Mr. Fawcett: I should like to ask about spraying for anthraxnose. When do you begin that, Prof. Troop?

Prof. Troop: We give one spraying just about the time the bud begins to swell, and then another two or three weeks later. This disease depends a good deal on the season. The prevalence of the dry season tends to hold it in check. But I want to insist that it is all important in all plant diseases to spray early.

Mr. Ritterskamp: How does Mr. Stewart shorten, in February or March?

Mr. Stewart: Usually they run seven to eight in a stool. I leave four of the most vigorous stalks, and cut back to eighteen inches.

Dr. Wolfe: Tell us, Professor, more about anthraxnose.

Prof. Troop: It is a fungous disease. I do not know that I can explain it very clearly, but it is a fungous disease that attacks the cane during the young growth, and it attacks the leaves, causing them to wither. It looks something like a rust on the leaf, and is found in little blotches on the young canes, spreading until often it nearly covers the whole cane, and sapping the life out of the plant and causing it to die. Not exactly like rust, either, because it attacks the bark of the cane, causing dead spots on the cane. It is more like blight.

Mr. Ritterskamp: There is a disease that sometimes affects the plant just as the berries are beginning to ripen, and they die suddenly. Is that blight or anthraxnose?

Prof. Troop: That is due to anthraxnose. I should like to ask Mr. Stewart if he practices and would advise growing raspberries for plants and also for berries, using the same plantation for both plants and berries?

Mr. Stewart: No, sir; I do not advise it. I grow for the fruit. I do not try to raise plants.

Prof. Troop: Will not your plants bear more and better fruit if you cut off the tips before they take root?

Mr. Stewart: Yes; I suppose they would.

Mr. Morgan, of Scott County: The State horticultural societies in the West, and in Missouri especially, say that the tips help to season the plant.

Mr. Ritterskamp: I have found in cutting these tips as late as the latter part of October, that a little green growth lasts till in December, and causes them to winter-kill. These tips are no drain on the parent plant whatever. As soon as the rootlets start, they get their nourishment from their own roots, and they help to stay the plants during the winter from the winds that throw them around. I prefer to do my cutting in the spring.

Mr. Burton: Your call is for remarks from practical berry growers; but I have a little outside evidence to offer. I do not grow them myself; our folks do not like them for use, and I do not like them as a business proposition, so I quit growing them some years ago. But I believe Mr. Stewart referred to one way of growing raspberries, which is the way I grew them, and I grew lots of them while I was about it, and had success with them, and the ground grew better all the time. I trim in the spring, or the latter part of winter, and do not drag the cane out with a rake or a sled, either. I simply let them lie and piled straw on them in the spring five or six inches deep and pressed it down, and the next year I piled it again on top of the fresh briars, and our berries were just grand. Of course, you couldn't do this on a large plantation, but I found it does excellently on a small one.

Mr. Hall: We do not trim until March, for the reason that we think the old canes help to hold the new ones in position during the windy weather. If you take out all the old canes, the wind will blow the young canes over, and I leave a cavity all around the old stalk, and we do not take out the old canes until March on that account. I believe it would be easier to cut it out immediately after the fruiting: but for the sake of the plant we do not practice that.

Chairman Latta: Mr. Charles Sacksteder, who was to have presented the subject of "Grapes," is unable to be here; but he has sent a paper on the subject, and his father has also brought some specimens of different varieties of grapes, which he will show to you after the paper has been read.

At the request of the Chairman, Prof. Troop then read Mr. Sacksteder's paper, as follows:

I was asked to give you a talk on growing and marketing grapes. There is so much room for improvement in my method of growing grapes that I would rather not say anything on the subject. As I have never marketed any grapes, I am not in a position to speak on this subject, either. But I would like to say something on varieties of grapes, having seen a goodly number of Munson's new hybrids and crosses tested, also a number of Herrman Jaeger's seedlings, and several of my own.

Of Munson's we have tried the Onderdonk, Early Wine, Eumedel, Bell, J. R. W. Munson, Ragan, Perry, B. W. B. Munson, Gold Coin, Van De Man, Bally, Delicious, Hopkins, Rommel, Carman and a lot of others named and numbered. They are all of good quality and productive, but subject to disease unless sprayed. Carman gave us four crops before showing mildew and rot. Gold Coin produced the handsomest crop of grapes I ever saw, and has failed every season since. Hopkins bears well every year without signs of disease.

HERRMAN JAEGER'S GRAPES.

No. 43, I understand, is a wild grape found by Mr. Jaeger. Bore for the first time at Mount Eden Vineyard in 1888; has never missed a crop since. Never suffers from rot or other diseases.

No. 52 is one of Jaeger's cross or hybrid seedlings. Larger berry than 43; does not set its fruit as close; is just as sure a cropper and as healthy.

No. 70 is a good wine grape.

No. 15. A sure cropper; very good quality; difficult to propagate.

No. 50. Very fine quality; tender; not satisfactory with me.

No. 50. Rotted badly.

No. 72. Not satisfactory.

No. 100. A yellow and pink grape; early; very sweet, with plenty of acid; skin cracks in wet weather.

I have several seedlings to show crosses on Jaeger's Nos. 43 and 52 that I believe are an improvement on 43 and 52 in quality and appearance and as healthy and productive. CHAS. SACKSTEDER.

Chairman Latta: I will now ask for a general discussion of the grape, after which Mr. Sacksteder, Sr., will speak of the seedlings that have been sent here for examination.

Mr. Morgan: To start this discussion, I would like to ask the best varieties for southern Indiana. The varieties that do well in the northern part of the State do not answer the purpose here, for either the market or home use.

Mr. Sacksteder: The Lindsay-Coomey family is a grape that is found in New Mexico and all over the Southwest. It is an immense grower, very perfect, and does not suffer from any disease. I obtained the first that came this side of the Mississippi from Herrman Jaeger. Here is the 43 and the 52—they have never failed a crop yet, and they are very perfect. We have made crosses; there are only black and pink grapes of that kind, and we wanted a white grape, but we could not get one. We have pink grapes, however, and have some here to show; but not a white grape. The Mammoth Delaware, here, makes canes that grow twenty feet long, and they can not be pruned very short. We leave canes six, eight and ten feet long, and sometimes more than that, and they bear from one end to the other. We have gotten two bushels of grapes from one vine, and they did not have as much room then as we give them now. Six or seven years ago we set them, and we picked two bushels off of one vine. We set six or eight feet apart.

Here we have the New Catawba. The 52 is a pink grape; we crossed the Catawba on it. The new vine is an immense bearer. I haven't the largest bunches and the best grapes here—they are not ripe yet; they ripen very late; they will be ripe in about four weeks from now, probably.

We have one seedling that ripens in the middle of July—a white grape; but that is not of the Lindsay-Coomey family. It is a fine grape. The Lindsay-Coomey family ripens from about the last of August to the first of November. They do not ripen all together. The best seedlings I could have brought are not ripe yet, and my son did not want to show them. Now this grape has another advantage; no cold weather or hot sun or dry weather hurts them. They come from a hot country where it does not rain for nine months at a time, and they do not suffer from the drouth. These seedlings are very fine table grapes. For a table grape you want a good pulp. Now the 52 is like the plums, you can break it and the seed will fly out; but the 43 is a wine grape. It is juicy, but the pulp is tough. Some of the seedlings you can take in your mouth and pierce the berry with your tongue and hold the seed and swallow the grape.

Professor Latta: Would this grape you refer to answer the question as to the varieties to grow for this section, and do they come along in succession?

Mr. Sacksteder: Yes, we have different grapes to ripen from August until very late in the fall of this family.

Professor Latta then requested Mr. Sacksteder to hold up the various specimens for inspection.

Mr. Sacksteder: This is the New Catawba; it is a cross between the Herrman Jaeger 52 and the Catawba. It has the flavor of the Catawba, and not of the Lindsay-Coomey family at all.

This is the Mammoth Delaware; it outgrows most anything, and outbears anything. It looks like the Delaware, but is a great deal bigger. Here are some that are not named.

This is the John. It has no pulp at all, you might say. It is a very fine table grape. This is another seedling, not named yet. It looks something like the cross with the Delaware and the Lindsay-Coomey. It is a very fine grape, but the bunch is not as large as the Mammoth Delaware.

This is a grape, No. 30. It is very fine in quality and has a great many bunches. It bears an immense crop, but not a large bunch. It is a very fine table grape, however, and there is not a rotten berry in the whole family. There are some more not named.

We have over one hundred seedlings, and some with the largest bunches and finest grapes are not ripe yet.

This vine bears the largest bunch and the largest berry. It is not named, but it is like the Black Hamburg; the berries are twice as large, and grow in immense bunches. I brought these specimens for you to examine, and if they interest you I should be glad to have you come up and taste them when we adjourn.

Dr. Wolfe: I should like to ask if Mr. Sacksteder is able to make grape growing profitable in this section; and if so, how?

Mr. Sacksteder: We do not sell grapes in the market. We make wine of them.

Judge Denbo, of Harrison County: I wish to know if any one has had any experience with the Tokay grape—a California grape—as to whether or not it could be produced here?

Mr. Sacksteder: Those California grapes will not do well in this part of the country.

Chairman Latta: Will Professor Moosmiller tell us something about grapes?

Professor Moosmiller: The fact is this, that the grapes of California will not winter here at all.

Mr. Ritterskamp: I should like to know from Mr. Hobbs what he would call the best grapes for this State—what would be best for family grapes, in color, quality and succession?

Mr. Hobbs: The grapes mentioned in my list are desirable in central Indiana, and, as far as I know, in northern Indiana. I would say that Moore's Early for an early grape, Worden's for second later and the Concord for late, are the three best grapes we can grow in this part of the State or in central Indiana. As to red grapes, there is nothing I like so well as the Delaware and Brighton. Both are excellent grapes. The Delaware is a small, red grape, with small bunches, but excellent in quality. I have seen them grow to a good size in southern Indiana. The Brighton is a large grape with few seeds. It is a little bit tender in central Indiana, and has to be protected sometimes; but when it is planted on the southern side of a building or fence and well covered there is little or no trouble with it.

Among the white grapes, Moore's Diamond and Niagara are two of the best and most vigorous growers. They are fair growers and good in quality; probably not as good in quality as some of the smaller grapes, but more easily grown than some of the more delicately flavored varieties.

For my own taste I like the old Clinton, that more nearly approaches the wild grape; and the Norton's Virginia is another grape that I like. Something like the wild grape. I am a southern Indiana product myself; I grew up in the mountain district of Orange County, and my first acquaintance with the grape was with the wild variety. And the Clinton and Norton's Virginia grape lead me back to my boyhood's days, when I climbed the sapling to gather the fruit as it hung in its wild, purple clusters; and these are very satisfactory for that reason. The Norton's Virginia has a soft seed easily crushed, and it makes a good grape pie; and I like to have a good grape pie occasionally.

Mr. M. W. Hanger: I have had some experience with grapes, and in my location, which is a limestone quality of soil, on a high elevation, nearly five hundred feet above where we stand now, out on the ridge near Edwardsville, and I find that the Early Victor, for home use, is about the best early grape that I have. It is not a good market grape; it shells off of the bunches very easily. The bunches are tolerable large and compact, but the berries shell off easily. The next to that is the old Ives seedling. That is a good grape in the locality I refer to. We can raise more of them and have less rot than on any other I have on my premises. It is a sure cropper—is the poor man's grape, is easily raised, and thrives with the least attention.

Next is the Worden. It is said that it is a little earlier and better grape than the Concord, but I fail to see the difference; and in wet weather, if it rains in certain stages of the picking, the grape cracks open. which the Concord does not do.

The Clinton is a favorite grape of mine in my location—it thrives well, with little attention. That would comprise the black grapes of which I would make choice for family use.

The Woodruff, red, succeeds well with me, and the old Catawba. In my location I succeed pretty well with that, while some of my neighbors in the lower ground have them all to rot. Still, on my location the old Catawba produces pretty well and is not more subject to rot on my farm than the Concord.

As to white grapes, my favorite is the Missouri Ristling. It is a fine grape and nearly all goes to juice, and for people who like to use a juicy grape it is one of the best white grapes I have. I have the Golden Pocklington, but they are a little too foxy. I have not succeeded well with the Moore's Early on my place, on account of it being a shy bearer. The grapes are large and fine, and come early, but on my premises it is a very shy bearer.

Some years ago I purchased of Mr. Sacksteder a plant of his No. 53 grape, and it bore abundantly, and it is a good-tasting grape. You can take it and pull it open and the seeds will drop out. It is a black grape and a late grape. It is just beginning to turn now. Then he has another kind that I ate while I was over to his place some several years ago, rather like the Norton's Virginia, and about as late, but the berry was about twice the size of the Norton's Virginia and the bunches were nearly twice as large—an excellent grape. I aim to secure a plant of that. I am coming over to your house, Mr. Sacksteder, and get some of that if I live long enough.

I am experimenting some along the same line as Mr. Sacksteder, and I have seedlings from the Missouri Ristling and quite a number of others. Some are not three years old, but if I live two or three years longer I hope to be able to give you some information about raising seedlings.

Now, the kinds I have mentioned are the kinds I have raised for family use. My experience in raising for money led me into a little error. From the first plants, in about four years' time, I netted sixty cents to the vine, and I had planted them six feet one way and eight feet the other. Well that set me wild! There was nothing else I could have gotten that much money from, and I figured it out that I was going to make money, and I set out a considerable vineyard, and that is the last time I have realized a profit from it. But I give it as my opinion that grape raising can be made profitable in my locality if you can find a market for them at two cents a pound. If we get that we can make grape raising profitable on these hills, but for less than that we can not. I have sold some of my grapes at two cents a pound and the buyers came and helped me to gather them, and there is a profit in them at that. But even if you fail to get the money for them, there is one thing sure—there is a whole lot of good eating in them, anyhow.

Mr. Ritterskamp: As far as the Moore's Early is concerned, they have sold for five cents a pound, because they come in before other grapes, and are raised in small quantities, for a limited demand. I believe they are very profitable. Ours have borne forty pounds to each vine, and are the most profitable I have.

Mr. Sacksteder: The Ives seedling is the best of our grapes. The Moore's Early is part Ives seedling and part Missouri Ristling.

Mr. Ritterskamp: I should like to ask some of the ladies how to make unfermented grape juice, if it is in the line of this discussion.

Mrs. Fawcett: I have squeezed the juice out of the berry in an amateur way, heated it very hot and bottled it, and it kept very nicely. Did not sweeten at all.

Mr. Ritterskamp: The nicest thing I have heard of is grape shrub. Take twelve pounds of grapes and squeeze the juice out and add a cup of vinegar, and the next morning strain it and add a cup and a half of sugar, and bottle that and use that in the summer for a drink, and it is fine.

Mrs. Forsythe: I have had some experience in making unfermented juice and keeping it successfully. I have a market for all I can manufacture of that, and the process is very simple. I gather the grapes and pick them carefully and wash them. I have an Ideal cooker, and I place them in that and steam them just enough to make them pop open.

I press out the juice and add a small quantity of sugar (that depends on the taste as to the amount), and then bring it almost to the boiling point. While it is hot I pour it into bottles anl leave them standing open twenty to twenty-four hours, then cork and seal tightly and keep in a cool place. I have unfermented juice prepared in that way now that I have had for some six years. It is altogether unfermented, but like good old wine, it improves with age.

Mr. Hester: If you heat it nearly to the boiling point and cork it up right away, you will have the pure juice, and get rid of the bacteria without fermentation.

Mrs. Lindley: I came in late, but I should like to ask the lady who was discussing the strawberry when I came in, what strawberry is it that in cooking will hold its flavor and color best?

Mrs. Fawcett: Of the berries we have raised, we found that the Crawford is the best cooking berry; and I can tell you how you will always find the best cooking berry. Break it open, and if the meat is red all the way through it makes a good cooking berry. Now, the Bubach is not that way; the meat is more white on the inside. But a berry red all the way through, invariably is a good cooking berry. The first I canned was a berry not very widely known now—the Lindley Chief. It was red all the way through.

Mr. Hobbs: We can a great many strawberries, and my wife prefers the Crawford. It is a dark, rich berry and we think it is the best for canning.

The Convention then adjourned, to convene at 1:30 p. m.

AFTERNOON SESSION.

The Convention was opened by an invocation offered by Rev. W. McK. Hester, after which Mr. R. A. Simpson, of Vincennes, read a paper on "The Fruit Industries of Southern Indiana—What They Are and What They May Become," as follows·

FRUIT INDUSTRIES OF SOUTHERN INDIANA—WHAT THEY ARE AND WHAT THEY MAY BECOME.

R. A. SIMPSON, VINCENNES.

Southern Indiana as a whole is naturally adapted to fruit growing. The apple, pear, peach, plum, gooseberry, currant, blackberry, raspberry and strawberry in particular grow to perfection and are not, as a rule, as locally restricted as in many of our other fruit states.

The products of the above are found in all our principal markets of the middle West, and, I am proud to say that, where they have been properly handled by our best fruit growers, they are drawing the top prices and are creating a demand for Indiana fruit.

Today I want to speak more in particular about the apple, for the reason that there is no fruit which comes so near being a staple commodity and none which has a longer market season or is capable of being made into so many secondary products. This commodity, I am sorry to say, when its possibilities are considered, is more neglected and its importance more underestimated than any of our other fruit industries—in fact, this field is just beginning to develop, and the possibilities as yet can not be fully appreciated by any except our thorough and thoughtful fruit men.

In traveling over southern Indiana I find a great portion of it is composed of a heavy clay soil. Now this particular clay is ideal soil for the apple. I also find that Indiana's best clay land is well located for orcharding, since it is rolling and elevated, thus affording ideal surface and air drainage, both of which are almost a necessity to a paying orchard. This clay is particularly rich in potash, which is also of vital importance, since it gives the fruit quality, and the high quality of Indiana apples is largely due to this abundant supply of potash.

If you ask a nurseryman why he likes clay to grow his apple trees on. he will tell you without hesitation that it is because he wants the best possible root system and a good, strong body. No other soil will produce this as well as the clay. Now if this is so in the nursery, you can readily see its advantage in the orchard. I have often noticed also that trees live longer on clay than on any other ground.

Now, in speaking of this clay, remember that it is the subsoil rather than the top soil that is of the greatest advantage to the apple tree. I would rather have a good clay subsoil with a thin top soil than a rich top soil with a thin subsoil. However, if we can have it all rich—and there is plenty of it right here at home—so much the better. It is because of this that a run-down farm is often very valuable for a fruit farm.

Again. I find that the Winesap, Jonathan, Rome Beauty and Grimes Golden, which are our leading commercial apples, grow to perfection here. If you will study the markets from year to year you will find that these varieties are the favorites and are the ones which command the highest prices. I do not believe that there is another state which can boast of these four leading commercial varieties which have the quality and which command the high price of those just named. While all four of these sorts can be profitably grown, I must say that of the four the Winesap is the most profitable over the largest area. Indiana is certainly the home of the Winesap, and we should not overlook the fact that we have right here in southern Indiana one of the largest Winesap belts in the United States. There are few localities in the United States particularly adapted to the Winesap, and they are so limited in extent that there can never be an overproduction of that sort. I therefore maintain that wherever we can find soil adapted to the Winesap we should not hesitate to plant the largest portion of it to this variety, for there is no variety which is more profitable when planted on Winesap ground.

Again. This fruit land is reasonable in price, and in many cases very cheap. It seems that the rougher the ground the better the fruit, and for this reason, among others, the land is often the cheapest. Then again, on this rolling and hilly ground we are in less danger of the frost, for the simple reason that frost will drain off of these hills just the same as water, and will often leave our fruit unharmed when other localities are injured. Of course, you will understand that within this apple belt there are sections where it is impossible or impracticable to raise fruit, but these spots are local, and should be used for something else.

A few years ago a report of the Geological Survey by the Department of Agriculture mentioned the clay soil which runs through southern Illinois, Indiana and Ohio and the high quality of fruit it produced.

Since there are so many natural advantages right here at home why is it that there are not more people taking advantage of the opportunity? I say to you, the possibilities of the apple business of southern Indiana is underestimated and being overlooked by our home people. This is not right, and you are losing money by not accepting such opportunities.

Fruit growing is one branch of agriculture through which it is possible for any of our energetic and intelligent farmers to develop an honorable and well-paying business. Fruit raising is a business which as a rule is the first to receive neglect and the last to receive careful and intelligent thought by our average farmers in Indiana. This condition of affairs I hope and feel sure will be changed within a few years, for there are a few men who are pursuing opposite methods and are demonstrating to the people some of the greatest possibilities in the fruit business in southern Indiana.

There is one thing—there is always a demand for the best, and there is not enough of the best of any commodity. But bear in mind that you can not make the best of anything unless you have the ability for it. It is of the greatest importance, therefore, that the first weeding, tillage, pruning, spraying and culling be applied to the man rather than to the crop. It is, then, of financial importance that these be intelligently applied to the crop. The keynote to the fruit business is diversification or individuality. The successful should aim to have something or do something which his neighbors do not, although it may really be no better than they do. I mean by this that you must be persistent, keep in close touch with all the branches of your business, and do not be dependent on your neighbor or your grandfather for information and instruction—he does not always know the best methods. There is often a better method than your neighbor's, and it is within your power and is your duty to work it out. He need not fear failure if he uses ordinary business methods, grows what the people want and packs it in an honest and attractive manner.

The grower should acquire the skill to make his plantations bear the years of least heavy crop, and thereby escape to a large extent the effect of overproduction or a full market. This can certainly be done. The very fact that there are years of overproduction and underproduction shows that fruit growers have not yet mastered the conditions which control their plantations. Perhaps the most important, and often the last thing for the grower to learn, is to thoroughly master his local conditions. What we can learn from books and teachers are principles and truths. We can pick up suggestions, and through them acquire ability to grasp our local conditions. However, let it be understood that each grower must solve his individual problems for himself. The most profitable stock in the fruit business is business training, for there are ten men who can raise a given quality of fruit where there is one who can sell it to advantage.

I believe that pruning, cultivating and spraying are very sadly neglected in many of our best orchards, thereby causing our fruit industries to be unjustly underestimated in value. I also believe that if careful pruning, thorough cultivation and thorough spraying is practiced, that (barring frosts) we can produce four apple crops in five years, and sometimes five.

Chairman Latta: Mr. Simpson, what is the proper Winesap soil, and give us some idea as to the extent of that, and the location geographically.

Mr. Simpson: A very heavy clay soil is the best, I think; and where you can find a heavy soil well elevated and rough or rolling, that is an ideal Winesap ground—I think as good as you can get. Very heavy clay soil, high and rolling. I often notice the rougher the character of the ground, the better quality and sometimes the better all round it is for the apple.

Mr. Hobbs: Do you think you have the ideal conditions for the Winesaps near Vincennes, or in your locality?

Mr. Simpson: I think so. We have not the commercial orchards that there are in some other counties, but in the past year there have been orchards that produced over two hundred dollars from one acre.

Mr. Hobbs: This last summer I was on Mr. Simpson's place, and they pointed out to me trees about the home grounds and place that they told me had borne five good, successive crops of Winesaps. I thought that a remarkable record. I think the soil conditions must be favorable, and the trees give every evidence of the best kind of treatment—all the material they wanted to make a tree and an apple of, and they have been abundantly protected by careful and thorough spraying. It was a very fine illustration of the possibilities of fruit growing in southern Indiana, when all the conditions are properly met, as they should be.

Mr. Simpson: I should like to say one thing in regard to the orchard Mr. Hobbs speaks of. There are thirty Winesaps in one block—fifty usually make an acre; but there were thirty in this block, which received the best of care that we knew how to give them, and from them we sold $200 worth of fruit, and the man to whom we sold them picked and packed them and paid us $200 for that part of the orchard.

Question: What was the age of the trees?

Mr. Simpson: Fifteen years. There was one of those trees I noticed in particular that bore twenty-eight bushels of well-graded fruit. When we first took hold of this orchard it had the apple scab very badly, and never produced anything until we commenced caring for it as we did.

Chairman Latta: Have you Winesaps this year?

Mr. Simpson: Yes; I would say about one-eighth of a crop. This is an off-year for the Winesap.

Mr. Thomas, of Harrison County: I don't know whether you have it in the neighborhood of Vincennes, but we have all along these rough hills a great deal of brown land—nigger head, we call it—a gravel or nigger-head subsoil. There is a great deal of that in Harrison County—about a fourth of the county. Would you recommend that for apples?

Mr. Simpson: The best way to treat these things is by observation, and my observation has been that Harrison is a good county for apples.

Mr. Ritterskamp: What do you prefer, the Jonathan or the Winesap? At present we are preferring the Jonathan, seeing that the wood is more upright and it is not so willowy.

Mr. Simpson: I should say, notice your local soil as to what is best of these four varieties. If the Jonathan will be most profitable for you, plant the Jonathan; if the Grimes is the most profitable, plant the Grimes; if the Winesap will do the best for you, plant the Winesap; and if you find the Rome Beauty does the best, plant that. I would raise whatever seemed most adapted to my soil; but some of the varieties are more subject to scab than others. There were certain old varieties that we had at one time that we discarded because of their being subject to that disease. The Jonathan is a good, thrifty grower.

Mr Ritterskamp: Is there any reason why the Jonathan should grow better and be more thrifty than the Winesap?

Mr. Simpson: I think not; the Winesap is a sprangly grower and spreads out a good deal, but the Jonathan is a more willowy tree, we find, than the Winesap.

Mr. Thomas, of Harrison County: Wouldn't you put the Ben Davis, which I see you omit entirely, close to the top of the list?

Mr. Simpson: No, I would not; I omitted that simply because Illinois is the Ben Davis State, and they can not raise a Winesap there like we do here in Indiana, and if we can raise something of better quality, and as beautiful, why not raise that?

Mr. Thomas: Down in my locality we make five dollars out of the Ben Davis for every one dollar we make out of the Winesap.

Mr. Simpson: Do you spray your apples well?

Mr. Thomas: Yes, we spray them all, and throw most of the Winesaps away. The Winesap is particularly susceptible to scab, and that has caused a good many to abandon that variety.

Mr. Morgan: Is the Winesap as susceptible to rot as the Ben Davis?

Mr. Simpson: No, I think not.

Mr. Morgan: Is the Stamen Winesap any improvement on the old variety?

Mr. Simpson: I have no experience with that, and can not answer. All I go by is the reputation. I have heard of it, and they say the quality is very fine, and many say it is better than the old Winesap; but I do not think it has been tried enough to justify us in saying it is better. If we were planting—and in fact we are planting now, the old Winesap, that shows what we think is the best. We think we ought to plant something that we know is all right for certain soils. It is a question of local conditions.

Mr. Kingsbury: I would like to ask Mr. Simpson if his apples are troubled with blemish spots and wrinkles, like these, as we are with three-fourths of the apples in the upper part of the State?

Chairman Latta: Before entering upon that question we would like to hear from Mr. Flick, who is now present, but will have to leave in a short time. Mr. Flick, will you address the meeting now?

Mr. Flick: I was very much pleased at the privilege of listening to Mr. Simpson's paper in regard to the possibilities of fruit culture in southern Indiana. However, he is very modest, and speaks only from practical experience, which is an argument from a solid foundation, as it ought to be. But the fact is, as you well know, I presume, that you people of southern Indiana have the garden spot of America for this culture—the place that has the soil and the climate for the production of the very best apples, which will always command the best market. Then you have the market. You have the position in the United States of a central location. You are in the center of population. The center of population in this country is in our State, and not very far from you—within seventy or seventy-five miles. There are millions of people all around us who can be reached by the railroads and other communications; and these two things are the key to the whole situation—the soil to grow the fruit, and the place to ship it from the cheapest. Now, what is the matter that we do not give proper attention to the cultivation of fruit and take advantage of the possibilities of our situation? My predecessor, Professor Troop, who is present, has labored for years to arouse the people of southern Indiana in this apple culture, and get you to put out orchards and take advantage of your possibilities. The Society is now working to that end, and has been doing so; but it does not appear to avail much thus far. We sometimes think we must bring in foreign capital to develop our resources in this line, if you will not take advantage of your conditions. You should be the owners of these orchards and reap the profit from them, but if you will not take advantage of the situation, we may have to bring in foreign capital to raise the apples and reap the profit, and you, who should be the owners, will have to take the place of employes.

I had a conversation not long ago with one of the foremost fruit men of the United States—Mr. J. H. Hale, of Connecticut. You who know him are aware that no other man can render a better judgment on this question, and he said that this is the best situation in America for apples, berries and peaches. Now these are the facts, and I should like to see an awakening of interest among you on this line.

Chairman Latta: Will Mr. Simpson now answer Mr. Kingsbury's question of a few moments ago?

Mr. Simpson: In regard to these apples that are blotched, I will say that they are stung by the apple curculio. Our section has apples that are infested or stung in this manner, and I think probably that is the case all over the State, more or less. The insects that do this stinging are hard to fight. We find it best to thoroughly cultivate our orchards; either that or cut the weeds and grass, and cut very closely. The less of weeds and grass, the less of these stinging insects you will have. In our orchard two years ago we had one block that we let grow into weeds—about an acre, alongside of the orchard—and in that particular block the apples were badly stung, just as these are on the outside. There was quite a difference, comparatively, between the number stung in that block and the others.

Chairman Latta: Mr. Thomas, what kind do you think is especially suited to Harrison County?

Mr. C. W. Thomas: The king of the apple tribe in our county is the Ben Davis, and we have a thousand Ben Davises to one Winesap, one Jonathan, or one of any other variety. We couldn't live without the Ben Davis. It is always bringing us something. We have the Ben Davis this year, when we have not a Winesap on the market. We have Ben Davises now, though I am sorry to say they are all dropping off, and we are hauling them to the stillhouses and realizing fifty cents a barrel on them; and even at fifty cents a barrel they are more profitable than wheat or corn. If I were to plant a thousand apple trees tomorrow, nine hundred and ninety-nine of them would be Ben Davises, for that is what brings the money.

The Winesap is a shy bearer when it does bear; but it bears only every three or four years. This year we are knocked out all around; and I would like very much if Mr. Burton will answer as to what is the reason we have not an apple crop in Harrison County this year. We had an excellent bloom—what is the trouble? There is certainly some trouble, as fine as you say this locality is. I think we had the finest prospect at the blooming time that we ever had. We had a light frost about the first of May, and that may have had something to do with the failure.

Mr. Arnold, of Harrison County: I should like to say a word about the Ben Davis and the Winesap. I live in Harrison County, and have both the Ben Davis and the Winesap, and I find the Winesaps more profitable to me, and find the trees live better than the Ben Davis. With the Ben Davis, after bearing a few crops, the trees die, while the Winesaps live and continue to bear. Then I never have the sale for the Ben

Davis that I do for the Winesaps. Last year I suppose I had twenty-eight bushels to the tree, and they were as fine as could be, and the soil was about the same kind of soil. Probably in some soils the Ben Davis might have brought more, but I find this heavy red clay soil is the best for the Winesap. Of course, this year we haven't the Winesap, but their blooming is late, and the frost this year that came just about the last of April or the first of May killed them. They generally bloom about the first of May, but as the season was open and warm, they bloomed this year about the last of April, and then we had a freeze which destroyed them.

Mr. Simpson: Do you spray them?

Mr. Arnold: No, sir.

Mr. Foley, of Harrison County: I wish to say in defense of Harrison County, that the brandy made with our apples is sent across the river to raise Kentuckians on. You can not raise a Kentuckian without something strong, any more than you can raise a nigger boy without corn bread. I also want to say that the Ben Davis brought more dollars to me than all the other fruits and peaches I have raised in the last ten or fifteen years. There is one trouble about Harrison County fruit raising, and that is the lack of transportation facilities. If you raise these fine varieties they easily decay, and a slight bruise will hurt them and they rot. Now I just shake down the Ben Davis off of the tree and shovel them in a wagon and sell them for a doller and a quarter a barrel. I send them to Kentucky and the people in Louisville do not know what a fine apple is. I am for the Ben Davis, it is the most easily raised, with the least trouble, and it brings the dollars every time; and we have to watch the almighty dollar to keep the sheriff from the door. The Winesap is a very shy bearer in my locality.

Dr. Wolfe: The Winesap has defects. It is an apple that does not stand very well; does not keep well. But the Ben Davis is not adapted to all localities. I have had large experience in Harrison County, where these testimonials come from, and I found the Ben Davis in Harrison County is better than that grown in this county. At our locality in Harrison County they grow the Ben Davis to perfection, and on some of those sand ridges they grow a Ben Davis better to eat when it gets ripe than a Winesap. It doesn't get ripe as early as the Winesap or the Rome Beauty, but the Ben Davis is a long keeper, and the possibilities of making money in southern Indiana is largely wound up in the growing of the Ben Davis. Wherever there is a sandstone ridge, it grows large and fine, and it is a well tasted apple, too—much better than none. We do not have to grow for the fine fruits, the Ben Davis is good enough for us.

Mr. Stewart: There are more Ben Davises grown in Jefferson County than any other variety, but others are being tried. The Grimes Golden and also the Jonathan are favorites now, but the money that is made at present is in the Ben Davis. The investment in our county is in the Ben Davis. It is in that now. I do not know what it may be later. Our transportation facilities are not very good. We have one branch that takes the fruit out, but not at a very reasonable rate.

Mr. Day: We have a great many varieties of soil in Ripley County, and I have both the Winesap and the Ben Davis. Mostly Ben Davis. We have a limestone soil in the higher places, and then this heavy white clay in the flats. I was afraid of the flats at first, but the limestone was too close to the surface, and the last I planted was on the flat ground, and I have had five continuous crops, mostly Ben Davis. I have some Winesaps that have a fungous growth on them, growing on that flat ground; but I know that formerly I saw on the Madison hills Winesaps growing in perfection. But the Rome Beauty will not do on that kind of soil. I have Bellflowers and a few other varieties, but no Rome Beauties.

Mr. Ritterskamp, of Gibson County: I believe Mr. Simpson made the plea that the Winesap needed a spray, and I think that southern Indiana needs to spray more than it does. I have known at the time when Ben Davis apples sold for forty cents a bushel, the Golden Grimes brought fifty cents a peck, and I know that the people that grew the Ben Davis could have grown the Grimes as well by spraying it and made more money. I think the question will hang on the spraying. Out in our section, those that have tried it in a small way, deluging the trees with spray liquid only, have profited by it. Of course, the Ben Davis does very well for a tree that receives no attention, but the money is in the better fruit if it is properly cared for.

Mr. Thomas, of Harrison County: We are trying another variety this year that is just coming into bearing—the York Imperial—and they are a fine apple. They are not as thrifty as the Ben Davis, and do not bear so early, but I believe it is going to be a profitable apple. The trees bearing this year are ten years old, and they have quite a sprinkling of apples, and the quality is excellent.

Dr. Wolfe: Nearly as good as the Ben Davis?

Mr. Thomas: Oh, they beat your Grimes Golden all to pieces.

Mr. Morgan, of Scott County: The Ben Davis is largely grown in our county and the Winesap does well also. These are the only two that bring much profit. However, the Grimes Golden and the Jonathan are doing well there now.

The Rome Beauty grows well, but it falls too early in the fall.

Chairman Latta: Mr. Mace, is that true of your side of the county. over at Lexington?

Mr. Mace: Yes, sir.

Mr. Isaac Mitchell, Gibson County: I am not a fruit grower at all, but I am rather amused at the discussion. There have been some things said that I would like to believe, and a great deal that I do not agree with. There are quite a large number of orchards of the Ben Davis in my part of the State, and they seem to be the leading fruit there; but I learn from the cold storage men that are coming in around there, that they are going to boycott the Ben Davis hereafter. They say that their loss on the Ben Davis was so immense from rotting that they do not want to handle it any more; so that those who have Ben Davis orchards want to "look a leetle out." I know on my place—I only have seven acres—and I have planted different varieties. I know the Winesaps do well, and the Rome Beauties and the Baldwins, and the Grimes Golden are good apples, if you can get them to stay on the tree, but they are early bearers, though apt to fall with me.

Mr. Simpson: Do you spray any?

Mr. Mitchell: Once in a while, but I neglect it oftener. I think there is generally a good deal of neglect among fruit growers.

Mr. Burton, Orange County: I did not hear Mr. Simpson's paper—did not get to the meeting in time. I had breakfast at 4 o'clock this morning and was very hungry, and it took considerable of a New Albany dinner to satisfy me. But rather than talk so much about fruit, and referring to what Mr. Flick said, I do not know that he put the matter strongly enough—that we have the very best apple location in the world. The peculiarity of the soil—heavy clay soil that is not well suited to peaches—is pre-eminently suited to growing fine apples. It does not matter what apple you grow, whether it is the Ben Davis, or the Whitney Crab, so it grows and you find a market for it. I should like to talk at some length on the adaptability of this country to the apple if we had the time to dwell upon it. But I will just say that with us, in our section, the most profitable is the Winesap; the next to that, so far as we have tried, the Rome Beauty and the Grimes stand just about equally in the scale, but the Rome Beauty does not do well in poor soil; the apples will not grow large enough, nor bear often enough, nor stay on the trees. I have this to say in justification of the Winesap: I have an idea that these trees are not always cultivated. How is that, Mr. Thomas? The Winesap is a very aristocratic apple, and does not grow under neglect. It responds readily to good treatment, but you must pet it some. One of the new apples that has shown up well in every instance I have known, is the Jonathan. I only recommend it so far as I have seen it tried, but so much faith have I in it now, that in a new orchard I planted one-third Jonathans and two-thirds Winesaps.

Chairman Latta: How does the Ben Davis rank?

Mr. Burton: It does not rank at all. The Ben Davis brings me in the most money when I sell it for twenty-five cents a barrel in the orchard. It has a reputation of being the best keeper of any apple, but it is the best rotter I ever saw.

Mrs. Lindley, of Washington County: I speak only from my own experience, and how the question affects me individually. We like the Transparent Early, for sauce, and the Wealthy for storing purposes. We have the Ben Davis, also, and I am glad that some one likes the Ben Davis. I do not believe there is an apple in the world that will bake like the Ben Davis. I know what I am talking about in that line, because people send to me for baked apples for miles around when they are sick, and it is not because I am so skilled as an apple baker, but because the Ben Davis is such a good apple to bake. I think the best late apple we have is the Gilpin.

Mr. Cravens: From experience in our county, I believe the kind of apple to raise depends largely upon the facilities for marketing and the market to which we send. Now we are talking of four different varieties. So far as the Ben Davis is concerned, I think if you live in Harrison County with Mr. Thomas, and can ship your apples down the Ohio river and get them to the colored brethren in Kentucky, the Ben Davis is all right then. They are a large, red apple and look enough like a watermelon, and you know the colored brother is very fond of watermelons. But if you are going to ship north, you must ship some other kind than the Ben Davis. We like the Winesap and Grimes Golden in our country, and they will always bring a dollar a bushel whenever you want to sell them, either one bushel or a thousand. They are a shy bearer, but take it one year with another, you can always get your money out of them. If you can get them in the northern markets in cold storage, there is more money in them than in any other apple. As for the Jonathan, they are white-meated, never very rich, and I consider them, and they are generally considered in my part, the best of the four.

Mr. Sacksteder: I think the Rome Beauty does about the best of all. A good many farmers near me have a great many of the Ben Davis and Rome Beauty apples, and they say the Rome Beauty beats the Ben Davis two to one. The Winesap doesn't amount to much near there —in Crawford County, which is my section. There is a new apple, new to us, the Wealthy, that is going to be a fine apple. We have some of them, and like them very much. They are just commencing to bear the third time, and they are a very fine apple.

Mr. Hanger, Floyd County: I have watched this county for the last fifty years and probably longer. About fifty years ago I was in the nursery business to a small extent, and I still retain one of those old varieties of apples that probably the younger men know nothing about; and in the location I am in now I have made about as much as anything out of that—that is the old Milan. It is very salable in the home market. I have never shipped any—never had to ship them. I could always get rid of all I had here in New Albany. If they once bite into them they do not want to go any farther for an apple. They are rather small; a pretty good keeper and won't rot from a bruise. The only objection to them is they are small. The Ben Davis does well on my farm here. I owned a farm in Harrison County once, a limestone soil, and they did not do well there. I had neighbors that would get probably two barrels of apples on their trees when there were none on mine, and I couldn't account for it. The trees grew immensely, but they did not fruit. As for the Jonathan in my location, while I admire the apple very much, it is a very shy bearer. I have some twelve-year-old trees now that have but very few apples on them. The old Genett and the old Milan, I have both on my place, and I make more money out of them than from any other. My Ben Davises are not old enough to do much yet.

Mr. Scott, Clark County: I can only echo what has been said in favor of the Ben Davis. Nine-tenths of the apples shipped from Borden in the past two years have been the Ben Davis.

Mr. Forsythe, Jackson County: At present the popular apple in Jackson County is the Ben Davis. The question was asked why was the apple crop at least a partial failure this year? I think for the past two years the excessive rainfall that prevailed during the blooming season had much to do with it, but mainly the late frosts were the cause of the failure. We did not have frost enough to kill the germ, but we had frost enough to chill the germ, and from which they rarely, if ever, recover. Let me make this remark: you are all more or less familiar with spraying. Now let me say to you that fighting frost is just as practical as fighting germs. And that is a problem for all of us to take home and study and learn from, and bring the result of our efforts to the next meeting.

Mr. Simpson: I trust no one will get the impression that I am against the Ben Davis. We raise it in Illinois. We have a commercial orchard in southern Illinois, and three-fourths of our trees are the Ben Davis; and I know there are more of the Ben Davis raised in this State than of the Winesap, and I further know that half the trees we send out from our nursery are Ben Davis; but what has been the rule in the past can not always be safe for the future. If you have observed it, quite a number of these gentlemen were asked whether they sprayed, and they had not sprayed at all, or so little as to not amount to much. But take the men who are spraying, cultivating and pruning their trees, and raising high-grade fruit, and you will find that they do not think much of the Ben Davis. The Ben Davis will not be the apple in this State a little later on. I still say that the Winesap is the apple for southern Indiana if properly cared for. You can not plant corn, even in a good corn country, and never pay any attention to it, and realize what you would from it if it were properly cultivated. And the orchard needs to be cultivated as well as the corn.

Mrs. Lindley: I should like to know how many of you have any trouble to interest your children in caring for plants, fruits and flowers. We do not have a bit of trouble with ours. We do not do it on a large scale, just for ourselves, but the children delight in it. Even our little boy, a very little fellow, enjoys it. I think that depends largely on how you do these things.

Mr. Hobbs: The way to interest children in the work is to be interested yourself, and Mrs. Lindley takes the right plan in going into the garden or orchard with her children. Unless you have a phenomenal case in the family, where they strike out along those lines of their own accord, you will have to work with them. It is not the normal condition of affairs when children take up these matters of their own volition. I find my little boy, who is with me here today, has become very much more interested in this line than the rest of my children, and I think that is because he is always with me and I am interested in horticulture. He hears these matters discussed and takes a lively interest in them, and the little fellow has procured a wonderful amount of information on the subject, simply because we come in contact with nature so much together, and he will ask questions, and I have tried to give him all the information at my command.

Chairman Latta: The next subject we will have is one of great importance to this section—"The Apple and How to Grow It," by Mr. Joe A. Burton.

Mr. Burton: Mr. Chairman, Ladies and Gentlemen—I suppose that no one will dispute that the apple is entitled to be called "the king of all fruit," and I will state that southern Indiana is the very happiest home of the apple. If you have any intention of planting an apple orchard, I want to talk to you about where to plant, what to plant, how to plant, and the time, and how to cultivate, and to gather.

Soil is more than everything else. In locating an apple orchard, soil is more than position. It is true that, other things being equal, elevated land, not necessarily a high elevation, but higher than the adjoining land, is best for the apple orchard. But unless the soil on the higher land is as well suited to the apple as that in the valley, or lower land, it is better to put the apple orchard in the valley. Fortunately for southern Indiana these peculiarly desirable apple soils are placed in the right position. In southern Indiana you have the opportunity of planting the apple orchard in the right place—above the valleys. I want to say incidentally to this, that it will be better if your land is free from stumps. Your apple trees, generally speaking, will grow better in new land recently cleared of the forest, but you want to have it free from stumps, otherwise you are apt to have root rot. That is a disease peculiar to this apple belt, and perhaps peculiar to this apple soil—that is, it seems to work more severely in this apple soil. In some places it is so bad that it destroys almost all the trees. One man in Crawford County told me it took almost every tree he had. In my own orchard I lost about forty per cent. from root rot on new ground last year; that caused a loss of about two thousand dollars. But I do not expect it to continue. The apples I planted last spring I put on old ground. It seems queer, when this disease has proven so destructive, that we can discover no preventive. A botanist of our locality told me that he had never seen a case of it, but we have had thousands of cases.

Having selected your site for an orchard, on an elevation, if possible, with the heavy clay soil, what are you going to plant? You discussed that awhile ago, and I do not know what Mr. Simpson recommended, but I have no doubt he had the Grimes in the list, and I believe he recommended the Winesap. I heard something said about the Genett. I like the Genetts, and the idea of my family being without Genetts would not do at all; and there are still a few people who want the Genetts and are willing to pay a good price for it.

Here is a newer apple for this locality, though not a new apple—the Jonathan, and it does well. Here is the Rome Beauty, that in many places is very successful. Here is one which some of you know—it is the Benoni, which is the king, doubtless, of the summer apples. If I lived close to town, I would plant some Benonis. They can be made an excellent bearer. I am away from the market somewhat, and so I only planted four hundred Benonis.

Having selected your trees according to variety, what size are you going to get—yearlings, two years old, three years old, four, or what? I have heard Mr. Hobbs say "Plant two-year-olds," and I do not know that I have heard anybody dispute it except myself. My observation and experience is, "plant large trees." They will bear more successfully, stand the transplanting better and give better satisfaction altogether. I do not know why they do it, but my observation has been that they do do it.

It is for the scientist to tell why this is so—being a practical man, I only tell the fact and do not attempt to explain it. When the tree has been transplanted, if it stands the transplanting, not only better, but even as well, it has two years the start, and you may be sure it will keep it.

Here is a tree which I brought for a practical illustration. It was planted last year, and I do not know its age exactly, and I suppose Mr. Hobbs would not remember it. It was an Excelsior, I think, but that does not matter—it was a thrifty tree. It was a large one sent us by the nursery at a small price, because they can sell a tree that is large as this very cheap, it being too large to hold over another year for market; and we planted it. I trimmed these roots quite short—see there, and there, so it would go in about a six or seven-inch hole, and here it is trimmed back; here is a limb left with a little start to go on. The year it was transplanted it lived, and last year it started to put out, and this, you see, is what winter did. It has been doing well and growing along this far this summer, and this is all the growing it did. We only expect a tree to live the first year—do not expect any growth at all; and this year see what it has done. Being a large tree did not hurt it in the least in transplanting, and you do not find young trees growing more the second year than this. When I went to set out that tree I did not dig a hole four feet across and three feet deep. It is not necessary. This tree made a big growth without it, and if I had done that I do not think the tree would have grown nearly so much. I want you to get this idea —that the tree does not grow in loose soil, but in compact soil. Doubtless you have all seen, as I have, seedling apple trees come from a seed in one year from a hard ground, and make a growth of three to five feet in a year. When I dug this tree up the other day the ground was hard, but it was growing. I dug it out with a narrow bladed hoe, and it was thriving. The ground was loose above, where we had loosened it up, and the cowpeas were growing around it, but there was hard soil below.

Why do these men advise you to cultivate for four or five years, if they grow best in hard ground? Why, to drive the roots down. The loose soil on top drives the roots down to seek the hard soil. Loose soil on top and hard soil down beneath are all right. I am not arguing against cultivating.

Dig a small hole, don't take much time for that, just large enough for the roots to go in nicely, but use considerable time in fitting and packing the dirt tightly and solidly around the roots; because, as I told you awhile ago, the tree does not grow in loose dirt, but in solid dirt. Pack it firmly as you can get it, is the best way, and carefully fit it around each root. Get poultry netting with a one-inch mesh to go around the trees, and put one around every tree, and that keeps the groundhogs as well as the rabbits off. With us the groundhogs are more destructive to trees than the rabbits. The groundhog eats only as far up the tree as he can reach from the ground, and a shield two feet high will keep him off; but if it extends up to the limb, you are almost sure to be free from his depredations. Get the netting one foot wide and cut it off in lengths you want it. We bought this wire at a cent a square foot by the roll.

You can grow three or four sets of trees with one lot of the wires. I tried using wire window screens at first, but they only lasted for one tree and then they rotted; but this poultry wire will last indefinitely.

What makes trees die on the southwest side, and the worms get at them? I answer, because they lean to the northeast, and the sun strikes them so hot along that side that is exposed, and the worms get there. In the last orchard I planted I drove stakes in the ground and drew the trees over far enough and fastened them, so the sun will not scorch them.

Now you want to trim your trees. Why not leave all the limbs on, you may ask; when it is a pretty shaped tree? Well, the first year they do not do much, except get a year old; and the next year they will sprout out and leave all the lower part vacant, so I cut them off so they won't grow a long, slim limb and I cut it off to give it a healthy growth. If a large limb needs pruning, I prune it and use a pruning saw. As to culture. This thing of clean culture in an orchard does not suit my views at all. I plowed my orchard one summer because I thought I had to on account of the bluegrass—I wanted to get rid of that, and the soil was all mellow and no weeds in it. But I do not plow my orchards now; I do not believe in it. I want to cultivate trees with grass. That is the best cultivation an orchard can get. In the spring, your ground ought to be covered with a great lot of trash—dead oats, dead peas, rye or any of the wild grasses. In my orchard it is grown over by crab grass, making a fine covering all winter, and in the spring it mulches itself. and this mulch, including the dirt, makes a loose mulch of four inches. Now how much water would it take to saturate that mulch? It would take a rain of from two to three inches, and while it was falling it would soak down, and consequently there would be no wash at all. Now the mulch keeps the water from going off and the ground from washing. If you have a soaker, you have a water holder. We do not want bare orchards at any time, I can not help what Professor Troop and the other professors say about trash in the orchard. I would rather have a few bugs in my orchard than have the land washed. My orchard, I think, is rich enough and we do not need to plant cowpeas to bring the land up; if we did I should use cowpeas, or clover; but the crab grass grows itself and makes a lovely bed for the apples to fall on, and in the gathering, to walk over. That sort of cultivation is easy. I believe I was to talk about how to make apple growing easy, and I offer you easy things to do. The way I tell you is not the only way, but I think it is the best way.

Now, to finish up with this, in regard to the spraying and so on, is Professor Troop's part of the business. But I want to say to you, that unless you spray there is no assurance of a crop. They do raise some crops without spraying, but that is not the general rule. I spray with the Vermorel nozzle. I often talk about the Vermorel nozzle and some people do not know what it is, so I brought this to show you. Whatever pump you get, be sure to get the Vermorel nozzle. There are four Vermorel nozzles connected together here, and there is a socket in the middle. We put this on a long rod, and use the four nozzles at one time, having two men to pump. Professor Troop will tell you all about the spraying and the whys and wherefores of it, but I wanted to show you what I consider the best nozzle.

I want to tell you how to gather. I saw a man come in from the country with as fine Bellflowers as I ever saw; but he had hauled them seven or eight miles, over rough roads, lying loose in a jolt wagon, and they were in that condition that the little boys like to fix them when they bang them up against a stone or a brick wall to bruise the juice out of them; and those apples, that ought to have been worth a dollar or a dollar and a quarter a bushel were all bruised till they looked like windfalls, and were not worth forty cents. I have had great trouble in apple handling to keep the gatherers from tossing them about till they bruise them and get them into a condition that they will rot easily. An apple has no business to rot if it is sound at the gathering time, unless it is bruised or affected by some outside agent. Don't you be that outside agent to start the rotting.

We pick our apples in small baskets; not in sacks, and we do not want our baskets to hold over half a bushel. This is a New Albany basket, made for the purpose of gathering apples, and is very convenient. It stands up this way, and we put the apples in, and when filled it can be turned down and the apples go into the barrel without trouble. We have used these in great quantities, and find them the best for gathering apples. I take some central location when we are gathering and fix a shelter to protect our apples in the barrels, and having plenty of baskets (one hundred and fifty of these baskets would cost me about twelve dollars), I try to keep about fifty going to the gatherers, fifty being filled ready to put on the wagon and fifty at the barreling place. All we ask of the people who make this basket is that they make it a little smoother, hammer down this center pin smooth, and you will have almost a perfect basket for apple gathering. When you are done with them they nest and do not take up much room. Some of these things are small affairs, but often it is the small matter that gives you success.

I thin considerably, but not near enough. We can not very well afford to miss thinning the Genetts, as they grow in clusters and ought to be thinned; it is easily done. Just bend them back and they will snap off. Let them drop where they fall, and if you do your spraying, you are apt to have large, fine apples. Many apples are helped by thinning. I do not let them overbear; if trees overbear they have the scab.

Mr. Mitchell: Have you ever tried the Illinois style of gathering apples?

Mr. Burton: No, nor do not expect to try it.

Mr. Isaac Mitchell: The way I have seen it done, they have a kind of three-cornered sheet they hold under the tree, and a boy gives the tree a knock and the apples fall into that sheet, and then they empty it. They don't let the apples fall twice without emptying it. Once in a while they-hit a limb in falling and get a little bruise, but all in all they seem to have little trouble of that kind.

Mr. Burton: They have a little more excuse for doing that way than I would, if their apples are Ben Davises, for they can take a great deal of abuse and get along about the same; and they don't get anything like the price that I get for my apples. Suppose they had sent some of the apples gathered that way to Paris to the show there, how long do you think they would keep? I had a bushel of Winesaps opened up on the 8th of August that had been there nearly a year, without having a single specked apple among them.

Mr. Isaac Mitchell: They claim they can save a great deal of expense that way.

Mr. Burton: Sometimes we save at one end and lose at the other.

Mr. Simpson: While there are some people who gather apples that way in Illinois, there are other people who are going to the expense of building extensive packing sheds, and hauling the apples to them and sorting them out. All the up-to-date packing men are doing that, and I think it is the method that will pay better in the long run.

Mr. Burton: We sort our apples from the basket. Putting them into the barrel, and that is the only packing they have.

Mr. Isaac Mitchell: When do you trim the old leaves off?

Mr. Burton: Any time when the tree is dormant; not when it is in leaf.

Mr. Isaac Mitchell: In planting on a slope, which do you consider preferable, east, west, north or south side?

Mr. Burton: The preference is very little. I want an elevation and it may slope in any direction.

Mr. Isaac Mitchell: On the north slope apples often grow better than in any other position, but the apples are of inferior color and quality, and there is a great deal of splotching. You would hardly know one was a Ben Davis on the steep north hillside, but on the southern slope they are high in color and high in quality; perhaps lacking in size, and they will not bear so much. The east and west slopes I think are preferable.

Mr. Rolfinger: I want to ask two questions. First, when you set out a tree, do you fertilize?

Mr. Burton: No, not that year.

Mr. Rolfinger: The next question is, do you want to set the tree in the same position it occupied in the nursery?

Mr. Burton: No, we do not pay any attention to that.

Mr. Rolfinger: You just plant promiscuously?

Mr. Burton: Yes; you don't know how they have been placed in the nursery. I do not see how you are to determine that.

Mr. Rolfinger: Well, I say that is according to principle, to plant them in the position they occupied in the nursery.

Mr. Burton: You have no proof of it, you can not tell anything about that.

Mr. Mitchell: I want to call your attention to the use of air slaked lime about your trees. Mr. Pulliam, one of the largest fruit growers in Centralia, bought some, and said he had the best of luck with it. There are heaps and heaps of that down at Milltown, packed up by the thousand carloads, and we sprinkle it as high as the limbs of the trees. I have used that, and my trees have done excellently with it; you can get that in any quantity; there are heaps of it down there, as large as this court house.

Mr. Burton: I never tried that on an orchard. I have seen it used in cultivated fields, but I never observed any effect it had on the production in the field.

Mr. Simpson: In southern Illinois I know that it is of benefit. I was over to Centralia and saw some of the effects of it, and we were so impressed with it that we are going to use it in southern Illinois in our nurseries.

Mr. Fawcett: Lime is not a fertilizer; is it? If it is a fertilizer you are all right, but if it is not you are robbing the soil of what is to come later. It is a plant food, but not a fertilizer, I believe.

Mr. Simpson: Our orchard is ready to bear, and we want to use it as a plant food. We are going to try it. It puddles very badly and that will throw off the plant food, and this seems to be what we need in that peculiar soil. I would like to ask Mr. Burton if he puts any dressing on the wounds when he cuts a limb off, especially on large wounds?

Mr. Burton: If I have time I paint them; it ought always to be done, but I do not always do it. I much prefer it, and sometimes I get it done and sometimes I do not.

Mr. Simpson: Do you paint it with common paint?

Mr. Burton: Yes, anything to cover the wound. It does not matter what. A drab paint or brown paint is what I prefer. It looks better.

Prof. Troop: Before we adjourn, I want to say a word in regard to the pruning. Mr. Burton spoke of cutting off the roots, and a question was asked in regard to the Stringfellow method. Perhaps some of you do not know what that is. Mr. Stringfellow, of Texas, advocated in the planting of trees the cutting off of all of the roots within an inch of the tree, and cut off all the branches, so that only the whip is left, so that by taking a crowbar or stick, and running it into the ground you plant the tree. Many people think that is a severe method of treating trees. A few years ago I tried that on apples, plums, pears, peaches and cherries; and I found that on peaches it worked admirably—perfectly; and trees planted that way, in one year's growth made a better root system than those planted with the entire root system; and some of the plums did well; pears did finely that way, and apples planted in the fall so that the roots had opportunity to callous over and get ready to start in the spring. They made a good root system pruned in that way, and a good top, also. You must, of course, trim the top back to correspond with the roots. Now we have some apples pruned in that way that we set last fall. I want to let them grow two years and then take them up and compare them. Each alternate tree is pruned that way, and the other left in the ordinary way, like you get them from the nursery. That seems like a severe method of pruning, but it will work on most of the trees. The sour cherries do not seem to take to that treatment, and I can not recommend it for them, but I would recommend every one of you to try this method in a small way. Cut them all away; you don't need a post-hole digger to plant them—don't need to go to that much trouble. Cut within an inch of the trunk and chuck them in the ground and they are planted.

The Convention then adjourned, to meet at 7:30 o'clock p. m.

NIGHT SESSION.

The meeting was called to order by the Chairman at 7:30. Rev. W. G. Clinton, of Centenary M. E. Church, led in prayer.

Chairman Latta: Ladies and Gentlemen—I have the pleasure of introducing Mr. Stanton, President of the Southern Illinois Horticultural Society.

Mr. Stanton: Mr. President, Ladies and Gentlemen—As the President has explained, I come to you entirely unprepared to talk on any given subject; but along horticultural lines I am always able to say something. Whether it will be of any special value to you or not I can not promise.

I understand this evening you nad a paper on "Fruit Interests of Southern Indiana—What They Are and What They May Become"—that was Mr. Simpson's paper. "How the Fruit Possibilities of Southern Indiana May Be Realized," by Mr. Burton. Those two themes I believe were pretty well brought out so far as the adaptation of this territory is concerned. There are several other papers I notice on the program here, and I do not wish to take up much of your time, so I would rather begin as the fruit matures and discuss the subject from the maturity of the fruit until it is marketed.

There is a great deal in having a package that is an attractive one; and there is a great deal in having attractive fruit in that package. In order to get that result, there is something in the manner and in the plan of gathering and packing this fruit. I know there used to be a process of gathering fruit, and possibly some of you are still pursuing that plan—that was, to pick the apples and pile them under the trees, and when you got ready you packed and barreled them and shipped them away. Now the theory that an apple must go through the sweat, the same as your wheat, has been exploded some time ago in the opinion of most commercial growers. The theory now is, that an apple picked directly from the tree and put into the barrel without ever touching the ground, and shipped immediately to market or put into storage is the best. That is the prevailing opinion now as to the best process of handling the apple.

People, until a year or so ago, were of the opinion that an apple should be picked just before maturity, and I can not say that I have changed my mind yet; but all late experimentalists along that line claim that an apple will keep better if it is picked when it is entirely ripe—one already matured. We have always thought that the next stage after maturity was decay, and considered, therefore, if we should pick the apple just before maturity and put it in cold storage, and hold it till we were ready to place it on the market, it would keep much better than if picked at maturity. The great objection to putting it in cold storage has been, it was claimed years ago that if you put it in cold storage it would not keep any length of time after you took it out. I will give you some of my experience, if I may, in regard to that. Winter before last I had the Illinois State Exhibit at the Charleston Exposition, and I shipped a car of apples of my own packing to Charleston, intending to go there and try if I could market it after I arrived there myself. The car of apples came in and I went to a prospective buyer and took him down to the car, and opened up one or two barrels to show him. Now, these apples were picked directly from the tree and had never touched the ground, but were put into the barrels and taken from the orchard and put immediately into storage. An apple that is picked directly from the limb, even though the weather may be very warm, is cool, and it retains that condition, and we had treated these in that manner and shipped it in an iced car to Charleston. The merchant, when we opened the first barrel, noticed that there was a peculiar color on the apple—that is to say, the natural bloom was still on the apple; it had not been handled and it retained its natural bloom, and when he rubbed the apple it showed a bright luster. He had not been accustomed to anything like that, and he asked me whether or not I had put anything on them to preserve them. I said I had not, and he observed that it had the appearance of having something on it, and I informed him that that was the natural bloom of the apple, and that it had never touched the ground; it had not gone through the sweat and been given the appearance of being thrown in the river before it was shipped. He had not an apple in his house that had a particle of luster on it; they looked like they had been lying around for weeks; so in this case he saw the peculiarity about the apple, and I had no trouble in selling them to him for about seventy-five cents a barrel more than he was paying for anything else. He said, however, that he did not think they would keep in that climate; that the salt air would injure, and that being exposed to the salt air in about thirty-six hours they would begin to rot. I told him that I expected to be represented in the exhibit the first of June and that I had apples there that I expected to maintain it with, and I thought they would keep. I offered to keep a barrel of apples there, not to show over ten per cent decay in two weeks, if he would double the price of his purchase money, and if they failed to bear me out, he could have them for nothing. He didn't take me up on that, but I saw him afterwards, and he said those apples did not keep worth a cent—he sold them out in four days. I saw them afterwards on the fruit stands along the streets, and I could tell the difference between them and other apples in the luster, the freshness and solidity. I have said more on that subject than I probably ought, but that is very important, I think. I noticed a good many young orchards as I came along on the train, and if these people are going to pick for the market or cold storage, it is a fact that it pays to be careful about the picking, and it pays to put them up in attractive packages, and it pays to be honest about them. I believe it pays to be honest anyhow, but it especially pays in packing apples. It sometimes happens that small apples will run to the center of the barrels, but they ought not, and if picked from the trees they will not be apt to do so.

Now we have the apples in the barrels, ready to use or sell——

Mr. Burton: In packing these apples do you grade them as to size? In picking them from the trees do you grade as to size?

Mr. Stanton: I will explain that a little further on. We have packing tables—the apples never touch the ground, but we make a canvas-top table; we take four or sixteen trees in a square, and after we have picked and sorted them, we move the tables and take another square. The apples never touch the ground, but they touch the table. They are poured on to this table on the canvas—not poured on top of one another—and if we want to make number one and two grades, we do so, and the culls are dropped under the tables.

Mr. Burton: I wanted to know if you graded as to size as well as to culls?

Mr. Stanton: We have grade No. 1 and grade No. 2—of course that grades as to size. The question of grades is very largely governed by the kind of crop you have.

Mr. Burton: What would you do with a barrel of apples that all ran barely number one?

Mr. Stanton: I would pack them straight.

Mr. Burton: Numbers one and two together?

Mr. Stanton: Yes, if they couldn't go as number one, I should grade them as number two.

Mr. Burton: But if they were barely number one?

Mr. Stanton: Well, if they were not number one they are not number one. They would have to go in a straight package; it might be a good medium between the number one and number two, and they will show up for themselves; whenever you open the barrel the buyer will see the grade. I do not believe in a lot of apples that runs largely to number two; it pays to pick numbers one and two, because when you are taking number one you are going to take some that are not number one, leaving the balance culls. I do not believe it pays, in that case, to make two grades.

Now as to the question of handling apples by small growers, or, for the matter of that, of handling any kind of fruit by small growers. A community that will produce enough stuff to load a car in one, or even two days, are the people who need especially a co-operative shipping association; because you can not ship in a small way and make it pay, and you will get discouraged and quit the business; whereas, if you would go together and organize and ship a load today, and another tomorrow, or, if necessary, have an ice car and load two days together and ship out in that way, you will save a great deal in freights. I have seen a time when if we were obliged to ship alone, we could not have gotten a profit out of our stuff, but by having an association we could go together and make a profit out of the difference in freight. The idea is, it is the small growers that need help—the large ones will take care of themselves; but the small growers, if there is anything in the business, will be large growers, and will be of great benefit to the community if they can be kept in the business; and the only way they can be kept in the business is by having an association that will enable them to get a profit out of their products.

Now, about organizing an association—You have nothing of the kind here?

A Delegate: No, sir.

In the first place, in order to have a successful co-operative shipping association, the one essential thing is to have confidence in each other. If you can not have confidence in each other you can not have a successful co-operative shipping association, because the co-operation that will not co-operate will not succeed. So, if you are going to organize an assocation, you must make up your minds that your neighbor is willing to do just as near fair as you are. I say that, because these things always come up. Your neighbor will imagine that because you are an official, or because you stand in with the officials, that you are getting better prices than he is. Nobody is so selfish as a fruit grower. I am one myself, and know that to be true. And still, along that line, there is not any man in any organization for any class of work of whatever character, who will get up and tell all the secrets of his occupation as the fruit grower will. I know the fruit grower's habit in this respect, and I know that he never holds any information back. He is glad to tell what he knows about the business to help his neighbor. But I insist that the great, essential thing is to have confidence in one another. If you start out right you will end right and make a success.

Now, in order to organize a shipping association it will be brought about very much the same as any other organization. Some one will have to take the initiative and notify every fruit grower that on a certain day you will meet for the purpose of organizing a shipping association. When the meeting is held, decide upon and elect your officers. Have a President and a Secretary and elect a Board of Directors. If you are only going to carry on the business in a small way, elect a President and Secretary in whom you have implicit confidence, and leave the business in their hands. When you are organized, there are several plans by which you may manage. If there is one central market to which you all ship—for instance, in handling apples, if you want to market them in one place, or if it is possible to do that, you can arrange with the President and Secretary to order a car, and if necessary to hold it over, have ice, and you can hold it two or three days in order to get it filled. If you are shipping to Indianapolis or Chicago, make up your minds and agree upon where you want to ship it. You do not necessarily have to ship it all to one man, or put it in the name of the association; you can mark your goods to anybody you wish. When you haul your stuff to the car, let your Secretary or your loader—you will have to have a loader—give you a receipt for so many packages; but you can mark to wherever you please, and he will give you a manifest, showing so many packages to one and so many to another. The car will be consigned to one firm, however, on whom you will have to settle. It will be handled by the association and consigned to some particular person or firm, and this person will unload the car and deliver to each consignee the goods assigned to him, and the freight will be collected pro rata, according to the number of packages. So the man who ships one package gets just as cheap a rate as the man shipping one hundred, and the small grower gets the same benefit as the larger. Another plan is, if the association wants to sell a car, let them empower the President and Secretary to sell it, and in that case the money will be divided on the same plan between the several shippers. Then there has been another plan in vogue on our road, but that is in regard to grapes, and would hardly apply to apples or other fruit. Grapes run along about the same thing as to variety. They ship the season through without regard to where the package goes—each shipper gets a receipt for so many pounds of grapes. They are shipped in the name of the association and sold in the name averages. But that plan would not answer in a general way, and the of the association; and at the end of the season they foot up, and each shipper receives according to the price that the whole season's shipment better way for the small shippers would be to sell to whomsoever they please—to sell the goods on their merits, and if you do not put up good stuff, it can not interfere with your neighbor, because he ships to whoever he pleases and gets paid for his stuff.

Mr. Cardwill: In this vicinity we are disturbed very much by the expense of shipping. For strawberries they charge thirty-five cents a crate to Chicago from here. The express companies are in a combination and charge an exorbitant rate, that gives them sometimes as much as four hundred dollars for a car. The expense of shipping is very hard on the strawberry dealers.

Mr. Stanton: Why don't you ship by freight?

Mr. Cardwill: If we ship by freight it just makes a day's difference in time, and if we would send a car out tonight it would not get to the Chicago market till the day after tomorrow morning.

Mr. Stanton: But if the car is iced there will be no trouble about that; you can just as well get them there for about twenty cents. I do not think it would be over twenty cents from there. But the thing to do is to form an association and let the association order a refrigerator car, and if you can not load it today, hold it over till tomorrow.

Mr. Fawcett: I was appointed a committee at one time to see what could be done in that regard, and I went to see the different railroads about it and worked several days on it; and finally they promised to put a train on for us, about four cars, and it would cost us about seven cents a crate; but they would have had to go through on fast time, and we couldn't succeed in getting them to go into it.

Mr. Stanton: If you had had an association you could have worked it, and that is the value of an association. An association having the requisite qualifications I started out with—confidence in each other—there would have been no question of your succeeding.

Judge Cardwill: I think you have hit it exactly when you insist upon having confidence in each other. The trouble is each one is afraid of the other in an association of that kind.

Mr. Stanton: I know how that is. I have been President of an association for about fifteen years.

Chairman Latta: Tell us how to beget confidence in one another, Mr. Stanton.

Mr. Stanton: Well, I think we are rather inconsistent about that. We have enough confidence in some people—too much sometimes. For example, a man comes around here that you have never seen before, and solicits shipments to his house, and they probably make up all their stuff to go there. Now, isn't that so? You have confidence all right, but it is somewhat misplaced. I think you would have a great advantage here if you would organize in shipping your strawberries. How many do you pick here in a day?

Mr. Fawcett: Several cars in a day.

Mr. Stanton: Do the express companies haul them?

Mr. Fawcett: Nearly all.

Mr. Stanton: The growers in my State send them in to Chicago on freight trains, without any refrigeration whatever. They always send them by freight.

Mr. Fawcett: What time do they get on the market?

Mr. Stanton: If they are shipped this evening, they get there day after tomorrow.

Mr. Fawcett: Would they stand up that long?

Mr. Stanton: They would from the central portion of the State. They would not do it from where I live, which is about on a line with this place. They would have to have an ice car.

Mr. Fawcett: We have the trouble here—the dealers say that if iced, as soon as they are out of the car they will go down.

Mr. Stanton: Well, they are handling them that way every day in the berry season in Chicago, and I think you will have no trouble about selling them if there is any market. I think it is queer that you have paid express companies such a price all these years, when the difference in rates is where the profit comes.

Now, another point. If a railroad company or any firm receives a letter from the President or Secretary of a shipping association, it will be sure to receive attention, whereas an individual will probably be turned down. Another thing, if you get hold of a scalawag commission firm, and I do not know what else to call them, for some do exist, you get better treatment and more notice paid to a remonstrance from an association than from an individual. In fact, our association over there does not allow anything that is not straight, and they will prosecute a man to the last inch if he attempts to take a dishonest advantage. The association stands right back of the officials, and these men have learned to respect the demands of the association.

Mr. Fawcett: Do you not think a few of the best growers could get together and start the thing, the others would probably come into it when they see it is successful?

Mr. Stanton: That is just it. If some of you start the association, the "doubting Thomases" will come into it when you are successful. You may be a little awkward about handling it at first, but after one season, you will have no trouble; and if you ship four cars a day, you certainly need an association.

Mr. Simpson: How do they take in these different members of the association? For instance, four prominent members get together and form an association. Now do these four vote on who shall come in, or how are they selected?

Mr. Stanton: That, of course, would depend on the constitution and by-laws adopted. Of course, you would have to have a constitution and by-laws to govern you, as in any other association. But they usually collect a fee—any grower can become a member, but they usually provide that a grower shall not be a solicitor for any commission firm. They become members by usually paying fees of a dollar each—say, for instance, a dollar—it might be more or less; that goes into the treasury. Now, if it costs twenty cents a case to ship berries to Chicago and market them, the association would add on a cent a case, probably, to pay expenses, and your distributor would probably charge you about five dollars a car, or may be only three dollars, and he would add that on at the other end. The thing is self-sustaining all along; you do not have to collect from the members; you charge that by the rate of freight, and each member pays according to what he ships. You just add enough to the charges to pay expenses. The plan will work all right, because you do not necessarily have to go to any member for fees or anything of that kind, for it is charged up as you go along; and when the shipper gets his return his freight is charged up at that rate. In a season you will save a great deal of money by that plan if you ship four or five cars a day.

Now, if there are any more questions you want to ask, do not be backward about asking.

Chairman Latta: Topic No. 2 of the theme assigned for this evening, on "Methods that Win with Fruits," is now in order, and we will hear from Mr. C. W. Thomas, of Corydon, on "The Pear."

Mr. Thomas: Mr. Chairman, Ladies and Gentlemen—I insisted that Professor Latta do not place me in this predicament of appearing before you as an instructor in this line, for I feel very much like I am only a beginner, and ought to remain a pupil, having only had about six or eight years' experience in raising pears; and I am persuaded, moreover, that my remarks will possibly not fit the subject. The theme is, "Methods that Win," and to some extent, ladies and gentlemen, I have to acknowledge to you that on account of an obstacle with which we have been unable to cope, I have in a large measure failed. In a measure I thought I was successful in the pear culture—at least we were successful in raising an orchard, where we have several thousand pear trees now running from four to eight years old, all bearing. But last year and this year, especially, we find ourselves in the middle of the woods; we have lost our bearings to a great extent, and I do not know whether we shall ever be able to get out or not. I allude to the subject of blight. Our pear orchards this year—several of them—most of them, have the appearance of old dead ones. They were formerly the pride of our hearts. There is nothing prettier than a pear tree. It is straight, it is ornamental, and there is nothing more beautiful than a pear orchard. We delighted to get in there and work with it, and talk to it. I do not know how you are, but I talk to my trees—talk to them mentally, at least, and sometimes audibly, if there is nobody near. I consult them about cutting off this limb, or that one, and I almost imagine I hear it halloo when I cut off a limb that is too large, just as a person would if you would amputate a finger.

Now, what few rambling remarks I shall make will be along the line of my experience, and will be a plea, as I said, for help. What shall we do to be saved from the pear blight? I hope Professor Troop will tell us of some remedy, as his theme comes next and bears directly on that subject. We had no trouble, as I said, in raising an orchard. You can raise a pear orchard easier and quicker than an apple orchard. It comes into bearing earlier, beginning to realize some profit for you when it is three or four years old. We raised principally the Keiffer, because we could not raise the others. They blighted. Nurserymen and dealers have told us that this variety would not blight, but it did, very much; it strikes the trunk—it first appeared in the twigs, and went downward and enveloped the entire tree, and the tree will die. Following the remedy recommended we began amputating at the top and kept going lower, until it took the entire tree. We have been cutting and burning now for two years, hauling out loads of dead limbs and branches and burning them.

This destruction began at the top and took in the whole tree. We raised the Keiffer because we understood that the Bartlett and other fruits (the Seckel not so much) would blight and die before they were old enough to bear; but the disease did not manifest itself in the Keiffer until it was large enough to bear.

Now, as to the location. I would select high ground. The blight first appeared with us in low ground. We have them in the bottom, on the hill and on the hillside, and the higher lands appear to be freer from the blight. I should not select the strongest soil. A medium soil is best—a soil that does not produce too rank growth, for the larger the growth the more susceptible are the trees to disease. Those on the higher ground, having a slower growth, are freer from the blight.

I would want yearlings, especially for growing Keiffer and Garber. I want yearlings because I can head them at any height I wish. At two or three years the tree has been shaped in the nursery. I would head very low, not to exceed eighteen inches, for the reason that it is a tall grower, and I want to dwarf it some, because I want it to shade the ground and help to fertilize and retain the moisture. There is every reason for low heading. An apple tree, I think, should also be headed low. It prevents the sunburn and prevents that tall body, swaying with every breeze. You do not have to tie it to a stake so much if the head is low. It keeps the soil damp beneath and helps to fertilize, keeps the sun from the body of the tree, and you can pick the fruit more easily. There is every reason for low heading, is my experience, with all kinds of trees—apples, peaches, pears, and all kinds. The old professional pruner ruined more orchards than he ever benefited with his pruning. Now, I have heard people say to plow you must head high, but I do not believe you ought ever to put a plow in a pear orchard. I believe a study of that subject would solve to some extent the question of blight. The orchards we cultivated in corn are the worst blighted; the ones in grass not so much so. We have one small orchard we sowed in grass at the start—never had a tool in it—and that orchard is the best. I believe if I were to plant another pear orchard I would sow it in bluegrass and let it remain, and never put a plow about a tree, and I think then we should come nearer to coping with the subject of blight. The growth would be slower, the branches not so tender and less susceptible to the ravages of the disease. That is our experience. If we can keep away this monster, pear culture can be made profitable, but if we can not subdue it, in my judgment it is largely a failure in this climate.

Question: Do you think this blight is not brought about by certain conditions of the air?

Mr. Thomas: I think it is caused by a bacterial germ. It may be that certain conditions of the atmosphere render it more susceptible to the disease, but I do not know how that is. I suppose it is propagated like measles, or smallpox, or other contagious diseases in the human body. At least that is the calculation, I believe, reached by the Experimental Station.

Another thing about the Keiffer: I do not know whether to blame myself most, or the nurseryman—whether to blame myself for not investigating and finding out it was sterile by itself and needed other varieties to fertilize it, or whether to blame the nurseryman for not informing me of that fact—but I have found that by itself it is sterile. We have a Keiffer orchard, at one end of which we have a few hundred Garbers, and they have been full of fruit; and the farther you get away from that Garber lot of trees the fewer the pears, until they disappear altogether. That has been the case for three years; they have actually borne themselves to death, and many have died from overbearing. The blight, however, has killed nearly all of the Garber and quite a number of the Keiffer pears adjacent to the Garber. I am sorry I did not investigate that question more thoroughly before setting out my orchard, and I am sorry the nurseryman did not tell me, if he knew. I think the Garber is the best variety to plant with the Keiffer, and it would have saved us much money if we had known it in the first place, and much vexation.

I believe I shall close these few rambling remarks by the inquiry, "What shall we do to get rid of this monster that seems now to put an end to the pear culture?"

Mr. Burton: I should like to ask you, Mr. Thomas, how many bushels of pears have you ever been able to sell to one family for their own use?

Mr. Thomas: We do not sell that way. We barrel and ship them.

Prof. Troop: You get them as far away from home as possible?

Mr. Thomas: Do you mean the Keiffer? I regard the Keiffer in the pear world to be what the Ben Davis is in the apple world. It is the king of pears. I do not raise them to eat. I raise them to sell, as we do the Ben Davis apple. And it is a seller; it is a shipper; it is a money-maker.

Prof. Troop: Speaking of cultivating to prevent the blight of the Keiffer, I suppose a good many of you have heard of the Stevens' Keiffer pear orchard at Salem, where there are about eleven or twelve thousand Keiffers in one orchard, and I think they have been in grass ever since they were planted, with one exception that was cultivated the first year—orchard grass mostly—and I was told today that the whole twelve thousand nearly are dead with the blight.

Mr. Ritterskamp: I should like to speak a word for the Duchess. We have the Duchess, the Garber and the Keiffer on Judge Wellborn's place, and if the Duchess does blight, it overcomes the disease more than any other variety. The branches may blight, and new branches come and make a new tree. There are trees thirty years old in Knox County that were blighted and grew out again, and I know of one that was formerly dwarf and is now forty feet high; and there are more Duchesses today on Judge Wellborn's and Smith's places than of the Keiffer, or Bartlett, or any other, and I believe the Duchess will take the place of the Keiffer, and it is a much better pear.

Mr. Hobbs: I was about to elaborate on what Mr. Ritterskamp says of the Duchess. It seems to be less susceptible to blight than many other kinds, and has more power to overcome the blight; but I think there is probably no variety under cultivation that is more immune from the blight than the Tyson. It is a small pear, unfortunately, but a very good one, and we have now trees twenty-eight years old that are in perfect health, where Keiffer, Martin, Garber, Flemish Beauty and many other sorts have gone down all around it. It is practically immune against blight. The Lawrence is another. It is a slow-growing pear, and the varieties that grow slowly and mature their wood well are usually less susceptible to the blight. The blight is very capricious. You do not know where it is going to break out, or when. I was through the Blue Brothers' orchards, who have the largest pear orchards in Central Indiana—not far from Indianapolis—and they are seriously affected with the blight, while at our place and at Ben Davis, on heavy soil, where the trees grow slowly, there is practically no blight—not even twig blight—showing that the soil and situation has much to do with this condition of affairs.

Dr. Wolfe: When the blight once strikes, is there no remedy?

Mr. Hobbs: None but just to cut away the diseased part back to the sound tissue; and then, if the little bacteria will be so kind as to keep away and not enter the circulation again, it will be all right. But they will not. And the trees that make a rapid, succulent growth are the ones most affected. The Keiffer has been emperor of this fruit for some time, but it is getting a black eye this year, for trees of succulent growth are more susceptible to this disease. It seems there must be an active circulation to enable this disease to get a foothold. The bacteria enter through these soft tissues, and when the weather is soft and warm the conditions are more favorable for the bacteria to enter the circulation. They also enter when the trees are in bloom.

Mr. Stanton: I want to suggest that instead of the Garber I think the Duchess is much better to use as a fertilizer—the dwarf Duchess. I have a pear orchard of some twenty-five hundred trees, nine or ten years old, and my Garbers did not begin bearing for three or four years after the Keiffer began, and that would be very objectionable if that were the case in other places. But I really think the Duchess is more desirable anyhow.

Mr. Mitchell: Mr. Hobbs, is it not a fact that the State Horticultural Society years ago settled down upon the fact that root pruning would overcome this blight?

Mr. Hobbs: No, sir. That question has never been settled. It is up for discussion tonight.

Mr. Mitchell: Wasn't that the opinion of the State Horticultural Society, that root pruning was the remedy?

Mr. Hobbs: I do not think the Society ever went on record as to that.

Mr. Mitchell: Well, I have heard some of the old pioneers of the Society of a good many years ago talk this over, and they said it was the opinion of the Society that root pruning would overcome this disease.

Mr. Hobbs: That was before my day.

Mr. Mitchell: Well, isn't that the idea?

Mr. Hobbs: I presume there may be something in the idea of checking the growth for the blight; but I wish to say that there is nothing in fruit growing which looks so dark to me as this question of blight in pears. The Department at Washington has been at work on this question for several years, and has been able only to tell what it is, how it is propagated, and that the best remedy we know of is in pruning; but that is not very profitable.

Mr. Thomas: I have an idea that right thorough pruning in the late spring might check the disease and lessen the susceptibility of the trees.

I do not know. I thought of shearing my trees square off, taking off the whole top, next spring. They are going to die anyhow, and I might as well try it.

Chairman Latta: Mr. Stanton, are you in the same predicament in your State?

Mr. Stanton: Yes. I think the gentleman will run no risk in cutting off the tops of his trees. He ought to have been doing that all the time.

Dr. Wolfe: Is it not a fact that in these large orchards your cutting out of the diseased part is imperfectly done, and you leave enough to keep the disease going?

Mr. Stanton: Yes, I think that is true.

Dr. Wolfe: I have had some experience with a few trees that I have, and I have cut severely and overcome the disease. I think in large orchards where the pruning is imperfectly done, that is responsible for the failures. My opinion is that severe cutting would remedy the matter.

Mr. Hobbs: Mr. Blue's farm north of Indianapolis has a large Keiffer pear orchard that had borne successfully and was in a good state of health. He planted the trees sixteen or eighteen feet apart, and he plants raspberries, etc., between, and he found as time went on that the trees were too close; but some years before he had planted some Comet and Early Harvest and one or two other fruits susceptible to the blight, and these had begun to blight considerably. About this time he began pruning his Keiffers, and thus exposed the surface to the blight, and from that time on his trees have been blighted almost every year; so I would say the less pruning that is done the better, because it exposes this surface, and when I pruned I would coat the wound with something to cover it.

Chairman Latta: May there not be a coincidence here—the less rapid the growth, the less pruning required, and, as has been said, the less rapid the growth the less danger there is of the blight?

Mr. Hobbs: Yes, that is very likely.

Chairman Latta: Have you anything touching this point, Professor Troop?

Prof. Troop: Nothing definite. There is no particular remedy for this blight. I know this blight can be spread and doubtless is spread largely by pruning—that is, by cutting off the branches where the blight exists, getting the germs on the knife and cutting off another branch and communicating the disease to that branch; so the remedy there is worse than the disease. It can be spread in that way through the knife.

Chairman Latta: And the so-called "remedy" in practice is really inoculation?

Prof. Troop: The remedy in such cases is really inoculation.

Mr. Fawcett: Then you ought to put the pruning shears in carbolic acid after cutting off a diseased part?

Prof. Troop: Yes; disinfect the knife.

Mr. Foley: I have a small orchard of Keiffers of seven or eight years of age, and so far I have had no blight. I put them too thick, and last year I thinned them down to three and four prongs.

Chairman Latta: At what time did you cause this pruning to be done?

Mr. Foley: I think it was some time in June.

Chairman Latta: Have you had any blight in your section?

Mr. Foley: But very little. I noticed one tree about half a mile away from my place that had some blight on it.

Mr. Hobbs: You have no source of infection, then.

Mr. Burton: I do not know whether I had better say anything or not, but you know we sometimes find a great many things that seem very true, and then the first thing we know they are not true. Last season I painted an apple tree that was about ten feet tall, a Yellow Transparent, from the topmost limb to the ground—gave it a thorough painting, to see if that would kill the blight. It was very much affected by the blight the year before, and, as I understand, the pear and apple blight are the same, except that it is a little harder on the pear. I got an idea that, it being a plant, it might be smothered out like a patch of briars. My experiment was far-reaching in its effects. The apple and pear trees were blighted severely the year before, and this one in particular, and this year I do not know of a blighted tree in five miles of my place. I painted one tree and cleaned up the entire community. Whether I shall have to paint a tree every spring or not, I don't know. This spring it broke out abundantly everywhere. It was lying dormant a year and broke out afresh in a worse way than ever. We may have to be careful about the remedies we use. This thing of pear blight is important; but suppose, Brother Thomas, that all of these tens of thousands of Keiffers had lived and borne fruit, what would you do with it? They would have been an elephant on your hands. I never have been able to sell a man over two bushels of pears. If I go to see them about it they say: "Oh, we got ours a month ago—we got all we wanted. We got two bushels and paid a dollar a bushel for them." If I say, "You can have them for fifty cents a bushels," he will say, "We have got all the pears we want," and if I would say fifteen cents a bushel it would be the same. People do not buy pears in the quantities that they buy other fruit. Now, is not that the fact, that you can hardly ever sell one family more than two bushels of pears? What would the poor grower do if the whole body of trees bore? People will only eat so many pears, and you can not get them to go beyond that.

Dr. Wolfe: So you think the blight is a good thing, then?

Mr. Burton: Yes, for pears. If there wasn't the blight you could not make anything out of them.

Dr. Wolfe: I feel satisfied that the spirit spoken of by my friend from Illinois, the selfishness of the fruit-grower, is often at the bottom of his troubles. Who could take care of from two to ten thousand pear trees when such a disease is prevalent? We doctors know that isolation and separation would be absolutely necessary in such a state of disease in the human family. Now, I have a little bit of experience. I was never selfish on pears; never had but a few trees of several varieties, among which was an Idaho, which, I suppose, was about the most susceptible to the blight of any. It was on my Georgetown farm that this took the blight. There were some Keiffers and other varieties in the same row—only one row, for family use—and at the first appearance of the blight on these trees I gave them a severe pruning. I did not soil my instrument going through a diseased limb, but cut away from it. I cut severely. I was out there last month and looked at that row of pear trees, and they were all right and doing well, and I think it is due to the fact that they were pruned severely and were scattered. I watched them closely and was able to take care of them. Now, on the farm I have here I have one that is an Idaho out there, and it took the blight last year and was blighted severely, and I cut it all to pieces. I didn't leave much if any of the top, and I was out there looking at that the other day, and it was putting out fine new shoots and looking first rate. May it not be that you coddle them too much and keep them too close together? Do you suppose a doctor could cure smallpox if he held his patients together? Now, this is a contagious disease. Do not be so selfish with your trees, and I am sure you will always have as many pears as Brother Burton wants—two bushels to the family.

Chairman Latta: And now we pass to the third division of this topic, which is the "Stone Fruits." This is to be treated by Mr. J. G. Scott, of Borden, Clark County.

Mr. J. G. Scott thereupon read his paper to the Convention, as follows:

THE STONE FRUITS.

It is the iron which impregnates the soil in that famous valley of Annapolis, Nova Scotia, renowned the world over as one of the greatest fruit belts. Such a soil to the fruit growers at once would be recognized, and would give body and flavor to fruits, which is of much commercial importance.

Roland Morrill, one of Michigan's greatest peach growers, hunted quite a while before he found a soil suitable for a peach orchard, and finally located in Texas, now known as the Morrill Orchard Company.

This company began operations in the spring of 1902, and have thirteen thousand acres.

The land is made up of red, chocolate and gray sandy loam, having a red clay subsoil. The point I would have you to consider is the nature of your soil. Hence, the importance of an education.

Will soil that is impregnated with iron have a tendency to preserve the fruit buds?

Now, the subject of growing good peaches, that will bring fancy prices, is one which intimately concerns all who are in the business. Some fruit growers think they are in the peach business, but really they are in the seed business. They grow far too large a proportion of seeds and far too little of the valuable part—the flesh.

Which is considered better for peaches, old, worn soil which has been brought to high state of fertility, or new soil?

Some claim that old fields are infested with crown gall.

There are good peach soils that will not produce big peaches, although there may be but few on the trees.

I have several cases in mind that have come under my observation, that rich virgin soil does not often bring as good peaches as that which is rather poor.

It should be well understood that the elements of fertility that do the most good to any fruit crop, and the peach is no exception, are those that do not stimulate a rank growth of wood and foliage. Too much nitrogen will have this effect, but there is no danger from potash and phosphoric acid.

SELECTION OF STOCK FOR PLANTING.

The selection of stock for planting is one of the most important items which tends to make a success in horticulture. The trees should be young, healthy and vigorous, and especially adapted to the locality in which they are to be planted. Utmost care should be used in the selection of stock free from disease, avoiding nurseries which are located in sections infested by any disease, such as San Jose scale.

I think that peach trees should be a year old before planting to the orchard, and that June buds are undesirable, as they have to grow a year in the orchard before they obtain the size and vigor of the yearling nursery stock.

Not reflecting upon the nurseryman's business, but his work ends with the growing of the young tree, and the tree which makes the straightest, most rapid growth is the one which usually finds ready sale. Stock should be purchased only from reliable nurserymen, and preferably from the section in which the orchard is to be planted.

Growers should be taught that varieties of fruit trees are as different and distinct in habit of growth as they are in form and quality of fruit, and that a first-class tree is a well-grown specimen, possessing all the characteristics of its variety.

A thorough preparation of the soil should take place. I advocate deep plowing in the fall, and early and thorough cultivation throughout the season. I advocate fall planting. The roots become well established. I would recommend about one hundred trees to the acre.

Prepare the trees for planting by cutting back the short roots and heading the tree low. I would advise that the tree be placed in the soil with the stem leaning a little to the southwest, so that the top will subsequently form a protection from the afternoon sun.

If the trees are allowed to grow tall, the fruit is hard to gather. It is difficult to spray.

The trees that are pruned back are liked best, because it pays best. The head of the peach tree should be kept open, the branches evenly distributed and the previous year's growth cut back from one-half to two-thirds.

There are three essentials to growth, air, heat and moisture. Keeping the ground stirred as long as possible lets in the air and heat, and at the same time prevents the escape of moisture from below. Level, shallow and thorough cultivation should be followed throughout the season.

When the trees become too large to allow plowing a hand hoe should be employed. If possible, let no vegetation grow under the trees during the fruiting season.

About the last of April or first of May I hill up each tree about eight or ten inches, and uncover a while before freezing. This generally kills all insects deposited. Profitable results are obtained in thinning peaches from four to six inches.

The prevailing idea is to grow as small a number of peaches on little trees, rather than a great number of little peaches on big trees.

I am fully convinced that we must use the sprayer, and as this subject, I presume, follows, I close.

Chairman Latta: There is another subject to be taken up, "The Question of Orchard Enemies and How to Combat Them." Professor Troop, let us hear from you on

ORCHARD ENEMIES AND HOW TO COMBAT THEM.

Prof. Troop: Mr. Chairman, Ladies and Gentlemen—There are two classes of enemies to the orchards—insects and fungous diseases, and there are so many varieties of these classes that if I were to speak of all I am afraid we should not get to bed tonight. Not very soon, at least. But I will only speak of a few of the principal ones, and a few of the essentials in combating them. Of the insects, one thing I want to speak of principally is the fact that we must keep in mind, in fighting insect enemies, that there are two classes. Those belonging to one class might be called eaters, or chewers, while those belonging to the other class might be called suckers. The one class eat their food—chew their food—while those belonging to the other class suck their food. Now, it makes a very great difference when you come to applying insecticides—it makes a very great difference whether the insect belongs to the one or the other of these classes; and that is the first thing to consider when an insect attacks our trees or plants, the orchard we are speaking of particularly. The first thing is to notice how it takes its food. If it is eating the foliage or fruit, or any part of the tree or plant, we apply some one of the arsenates, that will poison it when it is taken into its system. On the other hand, if it is a sucking insect, getting its food by sucking and causing the leaves to roll up and wither without being eaten, we must apply an entirely different remedy—one which will kill by coming in contact with the insect. So the first thing to have in mind is that there are two classes of insects, one an eater and the other a sucker.

Of those affecting the apple we have the codling moth, the fine webworm and the cankerworm, these feeding on the foliage and the codling moth on the fruit, and the flat-headed borer on the trunk. The apple is infested by the curculio, also, to a considerable extent. Of course, the codling moth does not eat the foliage, but it eats the fruit, and the young finds its way into the apple, and the remedy is Paris green or some of the arsenates that will kill by taking them into the stomach. Paris green has been used mostly for that, and also disperine, arsenate of lead, that comes in the form of a paste, and gives great satisfaction. We found this year that one spraying at the right time with the disperine has been sufficient, and trees that were sprayed last May, still have the disperine showing on them. It is more adhesive and sticks to the tree better than the Paris green, and that is its principal advantage.

As for Paris green, I might say that in using that I would always use it with lime. We generally use the Bordeaux mixture and the Paris green together for the codling moth and the apple scab of which we have been speaking here today, which takes both the apple and the foliage. This does not seem to have any on it, but you have all seen it. You all know what the apple scab is. It attacks the fruit, making scabby places, and the fruit does not fill out where that appears, and it also takes the leaves. We would spray for that early in the spring, about the time the buds are beginning to start. Spray with the Bordeaux mixture or a sulphate of copper solution alone. Bordeaux mixture is, you know, made up of blue vitriol, lime and water. We spray with that just after the bloom falls and leaves the young apple exposed, and to this we add the Paris green, and there you have an insecticide and fungicide combined, preventing the scab and also the codling moth from entering the apple; and the lime in the Bordeaux mixture enables the Paris green to adhere longer to the apple and remain longer in an active condition. Now, spraying for the codling moth is a good deal like combating the pear blight that has been spoken of here tonight. If it is not done properly and at the right time, it is not going to do very much good, and is labor wasted. The time to spray for the codling moth is immediately after the bloom falls, and while the calyx or the bud of the apple—the blossom end—is still open and the small apples are still standing with their heads up and the blossom open. Then the spray falls in the calyx and remains there, till the codling moth lays its eggs somewhere on the apple, and the larvæ work their way to the blossom end and enter there. When the spraying has been done at the right time and the larvæ have worked to the calyx, it gets some of the poison and stops there.

Another important point is to have the spray fine enough. The time to spray is very important, and a fine spray is also very important. Mr. Burton showed you the Vermorel nozzle. This is the one we use, though we have another that gives good satisfaction and success. That throws a fine spray if you have plenty of force behind it. With four nozzles it takes a good deal of force to send the material through with sufficient force to make the spray fine enough. A single drop will cover a good deal of surface if it is broken into fine enough particles to cover the surface, but it won't do much good as a single drop. The finer the spray the better, and you must put power enough behind it to throw it with force into the tree, so the entire surface of the tree is covered. That is very important, especially if you are spraying for apple scab, or any of the diseases—to cover the entire surface of the leaves, the branches and the fruit. These are two points of prime importance—the right time and a fine spray.

That will apply, of course, to all those enemies of the apple or any of the orchard trees that feed on the foliage. Covering the foliage all over with this spray will be of great benefit.

The cankerworm is often very bad in orchards. I do not know how it is down here, but in the northern part of the State it was very bad in years past, and where the spraying has been done properly they have succeeded in checking it entirely. The flat-headed borer also gets into the tree sometimes. I do not know, but I do not believe any of you ever found a flat-headed borer in an apple tree that was not injured in some way before.

Mr. Burton spoke of another thing, making the trees lean to the southwest, so the body of the tree is shaded and the sun does not strike it, so as to scald the bark. That is where the borer always gets in—where the bark is scorched; and if the tree is shaded so as to prevent that, you will largely prevent the depredations of the borer; but most people do not do that. We have found that a wash of soft soap or lye and carbolic acid, put on the trees about the last of May or the first of June, and applied two or three times during the summer, is very efficacious in preventing the attacks of the apple tree borer. You take soft soap and reduce it so that it will flow nicely, with a brush, but make it good and strong, and add two or three ounces of crude carbolic acid to a bucketful, and apply with a brush to the trunks. And that applies to the peach borer, as well as to the apple borer.

Another insect that works on the trunk and branches of trees, especially the plums, is the flat-beak beetle, that bores little pinholes through the bark of the large branches, sometimes getting down into the trunk, and lays its egg in those holes, where the larvæ feed on the inner bark, sometimes girdling the inner bark. When that gets too bad, the best remedy is to cut the tree down and burn it; but that can be largely kept out by keeping the tree in a healthy condition, for they almost always attack trees that have been otherwise diseased or injured previously.

Now for the sucking class. I do not know of anything better for that class, as a general insecticide, than kerosene emulsion. I suppose probably all of you here know how to make it; you take ordinary coal oil and water and spray well, and that kills by coming in contact with the insect. That is used for plant lice and all soft-bodied insects. Many, like the caterpillars, that can be killed by poisons, can also be killed by kerosene emulsion. I might say there are two classes of sucking lice—the plant lice representing one class and the bark lice representing another. Of course, there are others; we have the green aphis and the bark lice among the suckers. The green aphis or the plant lice may be held in check largely by kerosene emulsion, but the bark lice need something stronger. Take, for instance, the San Jose scale. I have seen a good deal of that, and I see you have some here. I got this branch out in the country this morning. That wants something strong, like whale oil spray, and that applied strongly in the winter time, or a salt, lime and sulphur wash, which is used so extensively in California. It needs something very strong, in order to penetrate the scale. These armored scale insects, while young, are very active, and the young crawl about the branches until they find a suitable place, and then penetrate the bark with their tiny beaks and suck their food from the bark, fastening themselves to the bark, the females of this class never moving again, but attaching themselves firmly to the branch or trunk of the tree, usually the branch, after a time forming this scaly covering over it. After this scale is formed it needs something active and strong to penetrate it and destroy the insect. The young of this insect are born, not hatched, in the spring or early summer, and keep up their depredations through the summer. One reason that this is so much more destructive than anything else that we know anything about, is because it propagates so rapidly. Somebody has figured out that a single female will become the great-grandmother of more than three billion during a season, providing that half of them are female and none are injured. And if you could see the branch that I am holding, you would not wonder at its destructiveness. Now you may ask what questions you wish.

Question: In what season does the curculio work?

Prof. Troop: He begins early in the summer, soon after the apples are formed.

Question: It looks like that specimen you showed us has been done recently.

Prof. Troop: No, that has been done some time; it was done during the forepart of the season, early in the summer.

Mr. Burton: Is there anything practicable to be done against the curculio in the apple orchard?

Prof. Troop: I do not know of anything more efficacious than spraying and using plenty of Bordeaux mixture and Paris green.

Question: Do you think cultivation makes any difference in regard to the curculio?

Prof. Troop: It might make a difference in this way: It would break up its hiding place by keeping the orchard cultivated. Where the orchard is kept in grass the curculio goes into the ground and goes through its changes; its transformation is in the ground, and it winters there. Therefore, if the ground is kept stirred under the trees, it would break that up to a great extent.

Chairman Latta: To what extent does the apple curculio feed?

Prof. Troop: It feeds just enough to make a knotty apple. Like the plum curculio, all it does is to puncture the apple and lay its egg there. That is all the harm it does, but that is harm enough. The apple curculio rarely comes to maturity in the apple.

Chairman Latta: How does treatment affect the larva, or does it affect to any extent the parent?

Prof. Troop: Treatment does not affect the larva any, for just as quick as the larva hatches, it eats its way into the plum. You must catch the adult to get any result with the curculio, and the jarring process, I believe, is the best. You have to take advantage of the habits of these pests, and one of the peculiarities of the curculio is that it drops as soon as there is any sign of danger. If a bird lights on a branch and jars it a little, the curculio drops and lies on the ground until all danger is over. Now, taking advantage of that habit, the Eastern plum growers give the tree a good, smart blow, using a sheet to gather up the insects. Some of our best plum growers practice that, especially in the East. They keep it up every morning—get up early in the morning and keep it up as long as they are able to catch any.

Mr. Fawcett: The way I practice it, we have good success, but we find most of the curculios on the outskirts of the orchard, near the woods, and inside the orchard there are fewer curculios.

Question: It seems to me that that is a good deal of trouble, and might be obviated if you have plenty of chickens. If you have plenty of chickens, do you need to gather them up with the sheet?

Prof. Troop: No, if you have plenty of chickens you can use them to advantage. The chickens are early risers, and if you get up pretty early in the morning and go around and shake the trees the insects will drop off and the chickens will gather them up. I have known plum growers that just turned their chickens into the orchard and trusted to the wind to cause the curculio to drop.

Mr. Ritterskamp: Two years ago, at Orleans, the subject of raising plums came up—there were some on the table at the hotel and we ate them and thought they were very fine. I tried to grow plums, but have been unsuccessful in Gibson County. I have tried for several years to grow the Abundance and the Gibbon, but was unsuccessful on account of the curculio.

Mr. Morgan: Our Burbank was not affected by the curculio except in a very dry season. It was more apt to be affected by the rot?

Prof. Troop: Thinning will help any plum; and I might add right here that that particular branch of the subject has not been spoken of as much as it ought to have been, especially in the stone fruits. The subject of thinning the fruits so that no two fruits will touch each other while they are growing, and especially for plums, is very important, and should have been more fully brought out. If the two fruits touch each other they can not ripen equally, and the subject of thinning is as important as anything we have touched on here today, with the exception, perhaps, of the apple growing, and I do not know that I would except that.

Mr. Stanton: I might say in regard to that, that I have thinned for two reasons—to get size and to get flavor. You can not get flavor, especially, without thinning. I have thinned my Keiffer pear, for the reason that I believe it helps not only the flavor, but the size, too; and I believe that in thinning peaches you get a better fruit, and also a better size, aside from the other advantages. Now, I would like to ask the Professor in regard to the second breed of codling moth, and also as to the injury done by the curculio in the last three weeks before the maturity of the fruit. It seems we can spray early in the season with good effect for the fungous disease, but after our fruit is apparently safe, about three weeks before gathering time, we find the curculio has fed on the apple; we find this blighted condition of the apple and are told it is nothing more nor less than the plum curculio feeding on the apple. I should like to ask whether or not this is true.

Prof. Troop: Oh, yes; often the plum curculio will be found on the apple late in the season, and of course it can only be held in check by following up the usual methods.

Mr. Stanton: How about the second brood of codling moth?

Prof. Troop: You can only prevent its ravages by spraying till the second brood is grown.

Mr. Stanton: Do you know of any way in which you can determine when they first make their appearance?

Prof. Troop: No; you will just have to keep up your spraying till you are sure there will be no further trouble.

The meeting was then closed at 9:30 p. m.

MISCELLANEOUS PAPERS.

PIONEER NURSERYMEN AND FRUIT GROWERS OF INDIANA.

W. H. RAGAN, WASHINGTON, D. C.

"Where yonder marble city tops the plain,
  And shining temples in the sunset glow,
Where wealth and beauty hold perpetual reign,
  And busy hands the seeds of progress sow,
In that same spot, a few short years ago,
  The cabin of the swarthy pioneer,
In cheerless solitude, surpassing show,
  Nurtured beneath its roof the hearts that were
  To build the empire of the western hemisphere."

This hastily written sketch, with its many omissions, inaccuracies and imperfections, is only submitted at this time as a suggestion to an abler writer, with more full and accurate resources at his command, who, it is hoped, will soon volunteer his services as a historian to chronicle the worthy events in the lives of our predecessors who so daringly came to pave the way for us—

"To cheer the world and plant the newer gospel as he went."

Practically all central and southern Indiana was then one vast forest wilderness. Into its almost impenetrable solitude, with its dangers and its privations, our forefathers pushed their way. There were no railroads nor highways then, for no one had gone before to prepare the way for their coming. Fortunately, they came not as adventurers in search of places of profitable investment, but as home seekers, generally from the ranks of those of moderate means, who thought to better their conditions where good homes were supposed to be within the possibilities of their search. The larger portion of these early immigrants were from the slave-holding States—in most instances men who fled from such a blighting curse, and to whom humble homes, even in the wilderness, were preferable to immediate contact with that great social evil that surrounded them. To one class of zealous philanthropists we owe much for our early horticulture and pomological development—the Friends, Quakers, generally from North Carolina. As a rule they settled in communities or neighborhoods, and to this day those "neighborhoods" are the bright spots which through their forethought and frugality now blossom as the rose. The earlier immigrations of Friends located in Washington and Wayne counties; later, they penetrated to Henry, Madison, Hamilton, Hendricks, Morgan, Parke, and finally to Clinton, Delaware and Howard counties. In each of these counties their good impress may still be detected in the thrift, morality and enterprise of their immediate descendants and successors.

But perhaps the first of all our pioneer fruit growers were foreigners—a colony from Switzerland, who began grape growing and wine making at Vevay, in Switzerland County, at the very beginning of the nineteenth century. For a time their efforts were encouraging, but disease and uncongeniality of foreign varieties and a lack of native varieties of good quality soon caused them to abandon their enterprise. Their best native grape was York Madeira. Had the Catawba been known at that time, as it was later, at Cincinnati, they doubtless would have succeeded to a far greater extent.

Washington and Wayne counties were each, by reason of their location, early settled sections of the State. Among the first to plant seeds and to cultivate fruits in Washington County was Henderson Llewelling, a Friend, originally from North Carolina, but who first settled at Salem, Ohio. It was he who suggested the name of that Ohio village for the new Indiana town. He appears to have possessed a restless spirit, for he did not remain at Salem, Indiana, long enough to become much crowded by the inconveniences (?) of civilization, but soon migrated to the Territory of Iowa, where he again gave to the village of which he was an early settler the name of his former Ohio home. From Iowa, in the forties, he again joined the first colony of emigrants to cross the Rockies to Oregon, where he left to posterity the name of "Salem," now the capital of that great State. True to his native inclinations, he took with him on this long journey by wagon from Salem, Iowa, to Salem, Oregon, many varieties of fruit trees, principally of the apple, and thus became the first to plant that fruit in Oregon. But, while the above may be interesting history, it is perhaps an unwarranted digression from the subject of this paper.

Another pioneer who made a temporary stop in Washington County, before penetrating the wilderness as far as Putnam, was Reuben Ragan, and some of those who remained in the county long enough to become fully identified with her horticultural development were the Albertsons, the Wrights, the Truebloods, the Lipseys, and many others well known through their worthy descendants to this day.

Andrew Hampton, Cornelius Ratliff, and Gardner and Griffith Mendenhall, the latter brothers, were among the early and well-known fruit growers in Wayne County, near Richmond. These families are still well known as enterprising and worthy citizens of that section, through their numerous descendants, and not a few of them are yet adhering to the traditions and inclinations of their fathers in their occupations. Then there were the Brunsons and the Wallace Brothers (John and Thomas W.), who were truly pioneer fruit and tree growers near Richmond. Reuben Brunson was the father of Stearns Brunson, who later (himself a pioneer in that section) located at Mishawaka, in St. Joseph County, and after a time spént in the nursery business in that place, had the foresight to recognize in Western Michigan the conditions necessary to successful peach growing. He consequently, in the early fifties, removed to what is now Benton Harbor, Michigan, where he was again a pioneer in the great enterprise of peach growing in that favored section.

Near Centerville, in Wayne County, was the home of Lewis Jones, who was temporary chairman at the organization of this Society, in October, 1860, and who remained with us until 1877, when death separated us by his removal. To his memory the world owes much for his intelligent, untiring industry and persevering success in promoting the cause for which we labor. He was the originator of many varieties of apples of value in his day, as he who carefully reads Warder's Pomology must learn.

To a later generation of Wayne County horticulturists may be assigned Thos. B. Morris, Walter G. Stevens. John J. Conley, J. C. and C. S. Mendenhall, J. C. Ratliff, E. Y. Teas and many others not now recalled to mind, some of whom we are still privileged to "meet and greet in the flesh." Two of the above named, Thos. B. Morris and E. Y. Teas, were present at the organization of this Society on the evenings of October 18 and 19, 1860. Happy are we in their prolonged and useful lives.

Perhaps Levi Cook, a native of South Carolina, who began a nursery in Greensboro, in Henry County, in 1824, was the pioneer nureseryman of that county. But many worthies of later generations have contributed to her interesting horticultural history by following in his footsteps. Among these, one who still lives in a distant State is especially worthy to be classed. I refer to John C. Teas, who also participated in the organization of this Society.

The pioneer nurseryman of Marion County was Aaron Aldridge, who established and conducted an extensive nursery within what is now the city limits of Indianapolis, from the early thirties until about 1852. He was a man of intelligence, zeal and enterprise in his calling, and was one of those worthy pioneers who, in 1840, originally organized the Indiana Horticultural Society. As colaborers in that good work with Mr. Aldridge, I can only name a few of the leading spirits. Doubtless the first of these was Henry Ward Beecher, whose encouraging efforts through the columns of the Western Farmer and Gardener, of which he was then editor and proprietor, called together in the autumn of 1840, and into the organization then effected, such men as James Sigerson and George W. Merritt of Hendricks County, Reuben Ragan of Putnam County, Joshua Lindley of Morgan County, Cornelius Ratliff and Andrew Hampton, of Wayne County, and James Blake, James M. Ray, A. S. Willard,

J. S. Willetts, Nathaniel West, Joseph Beeler, Henry Coburn, Calvin Fletcher, Abner Pope, Powell Howland and others, all of Marion County. These worthy fathers should be kept in bright remembrance by us, their descendants, who now enjoy so much as the result of their good work and example.

The immediate successor of Mr. Aldridge as the leading nurseryman of Marion County was Martin Williams, who had his nursery on part of the land now occupied by Crown Hill Cemetery. In about 1859 the firm of Fletcher (our late associate and friend, Calvin), Williams & Loomis was organized. Mr. Williams contributed his accumulated stock at Crown Hill, and thus became a member of the firm. This firm would doubtless have been successful and ultimately have grown into importance but for the rebellion and succeeding war, that almost completely paralyzed all peaceful pursuits for the time being. In the meantime, John F. Hill, who administered the Aldridge estate, had for a time continued the business in his own name on the old site, which was between the Deaf and Dumb Asylum and the older portion of the city. But real estate had now become very valuable in that locality, and the enterprise of Mr. Hill was soon directed into a different and more remunerative channel--that of real estate agent.

In about 1830 the pioneer nursery of Morgan County was established at Monrovia by the late Joshua Lindley, of North Carolina. For intelligence and enterprise among pioneer nurserymen of his day Mr. L. stood in the front rank. He continued in the business at Monrovia until about 1843, when, on account of climatic conditions, he returned to his native State, where he lived until ripe old age and left as a legacy to posterity his only son, heir and successor, the present J. Van Lindley, than whom the South has no more worthy or enterprising citizen. Mr. Lindley, while a resident of Indiana, was especially active in securing and testing new and promising varieties of fruits. The pear was a great favorite of his, and he was, beyond doubt, the first to fruit the Bartlett within the borders of the State. Of this fact the Indiana Farmer for August, 1840, page 3, bears me witness, where the testing of the first specimen grown on his place is made a matter of record.

Hendricks County's pioneer nurseryman was James Sigerson, who established a nursery near the present village of Avon. He also was an intelligent and enterprising man, who later became a noted pioneer nurseryman near Carondelet, just south of the city of St. Louis, Mo. His successor at Avon, Indiana, was George W. Merritt, who, in October, 1840, exhibited fruit of his own growing before the Indiana Horticultural Society, at Indianapolis, and received the following notice by the Committee of Awards: "By George W. Merritt, Large Merritt Apple, Vandevere Pippin and other kinds." This record may be found in the October number of the Indiana Farmer for 1840, and I quote the same because of the opportunity it affords me, and it is a pleasure as well, of saying that this same George W. Merritt was living and hearty in August last (1903), as I myself am a witness, having met him near his own home at that time. This incident is cited in evidence of the correctness of the claim of the writers, that a life of horticultural pursuits truly contributes to longevity and serene old age.

The next nurseryman of any note in Hendricks County was the late Major Z. S. Ragan, who began business on his own account in about 1840, on the National Road, a few miles west of Belleville. Later, and after the completion of the Vandalia Railroad, he removed to Clayton, where his younger brother, William A., became a partner in the business. After the close of the war, in which Major Ragan participated throughout, he removed to Independence, Mo., and later to California, where he died, full of honors, in June, 1888. His brother continued the business at Clayton for a number of years, and became justly noted and highly honored wherever known.

The pioneer nurseryman of Putnam County was Reuben Ragan, an uncle of the preceding, and the first President of this Society, who located near the present village of Fillmore in 1821. Mr. R. was never an extensive nurseryman, he rather combining the qualities of farmer and nurseryman, but he was deservedly distinguished, in addition to being almost or quite the pioneer nurseryman of the State. He was also full of enterprise and untiring industry in collecting from all available sources varieties of fruits that gave promise of being valuable acquisitions to the lists then in cultivation.

An early pioneer nurseryman of Montgomery County, if not the earliest, was O. P. Jennison, of Crawfordsville.

In Parke County there was a community of Friends, or "Quakers," and, as usual, where they were found, there also might be expected the works of the horticulturist. Among the early nurserymen of that county were William Wildman, Solomon Allen, John W. Tenbrook, William Pickard and others. Tenbrook was one of the organizers of this Society, and a very worthy, enterprising and intelligent gentleman. His younger brother, William B. Tenbrook, was also a nurseryman of some note. He is still living, and Solomon Allen died only a few years since, in his ninety-sixth year, "still in the harness," as it were. The writer visited him when in his ninety-fifth year, and found him cultivating his garden and marketing his own fruit at Rockville, four miles distant, and he told him that when he would dispose of a favorite specimen he always made the request, "Please save me the seeds, as I wish to plant them and see what they will produce." In his garden were a number of seedling trees and plants, which he was training and caring for with eager anticipation as to their products.

Archibald Simpson, the father of our H. M. Simpson, was a pioneer nurseryman at Vincennes, in Knox County. For a time Mr. W. B. Tenbrook, mentioned above, was associated with him as a partner. Mr.

Simpson was a charter member of this Society, and left sons and grandsons who are honoring his calling and his good name. Vincennes was also the home of S. Burnett, whose memory as an early nurseryman of that place is worthy of honor and respect.

John Snepp, of Johnson County, who originated and introduced a very excellent apple that bears his name, was another worthy pioneer who participated in the organization of this Society, and who also continued a member during the remainder of his life.

Dr. John C. Helm, of Delaware County, represented that county in the organization of the Indiana Horticultural Society. Another of her citizens, Dr. S. Hathaway, soon after joined our ranks. These and many others have contributed to the upbuilding of the cause in that section of the State.

For a number of years prior to the early sixties, the late Allen Lloyd and his son Thomas A. were the principal horticulturists of Tippecanoe County. The son acted as temporary secretary in the organization of this Society in October, 1860.

General Joseph Orr of Laporte, one of the very first settlers of that county, gave much intelligent attention to horticulture, and to the well-being of this Society, of which he was an early member and officer. Irwin S. Jessup, also of Laporte, was an efficient member of our association from an early day and until his death.

At the first regular meeting of the Society, in January, 1861, Allen County contributed to our numbers one of her most distinguished citizens in the person of the Hon. Isaac D. G. Nelson. Mr. Nelson soon found himself, where he justly deserved to be, at the front, for in 1863 he was made President of the Society, a place to which he was successively re-elected for a period of seven years. Of all the men who have been associated with us from time to time, no one has reflected greater credit upon our cause than did he. He was a practical horticulturist of rare ability, and was an ornament alike to our State and to the nation. He died at his home in Ft. Wayne, in 1891.

But I find I have already exceeded the proper limit of such a paper as this, and will close by appending the following historical data: Those who were present and participated in the organization of the Indiana Horticultural Society, on the evening of October 18, 1860, were Joseph Ashton, Clark County; George M. Beeler, Marion; Eliphalet Case, Switzerland; Calvin Fletcher, Marion; Gardner Goldsmith, Marion; Dr. J. C. Helm, Delaware; John F. Hill, Marion; Lewis Jones, Wayne; William B. Lipsey, Washington; Erie Lock, Marion; William H. Loomis, Marion; Thomas A. Lloyd, Tippecanoe; Dr. G. W. Mears, Marion; Thomas B. Morris, Wayne; Abner Pope, Marion; Robert E. Ragan, Hendricks; W. H. Ragan, Putnam; John Snepp, Johnson; E. Y. Teas, Wayne; John C. Teas, Henry; John Tenbrook, Parke; Abram Trueblood, Washington, and Dr. John A.

Warder, Cincinnati, Ohio. Of these only five, Thomas B. Morris, W. H. Ragan, E. Y. Teas, John C. Teas and Abner Trueblood, are living.

Those who attended the first regular meeting of the Society, on January 8, 1861, and became members for the ensuing two years (the meetings then being biennial), were Joseph Ashton, Clark County; George M. Beeler, Marion County; John Conley, Wayne County; D. V. Cully, Marion County; Calvin Fletcher, Marion County; G. Goldsmith, Marion County; Dr. J. C. Helm, Delaware County; Lewis Jones, Wayne County; William B. Lipsey, Washington County; W. H. Loomis, Marion County; John A. Matson, Putnam County; Dr. G. W. Mears, Marion County; C. S. Mendenhall, Wayne County; William Miller, St. Joseph County; Thomas B. Morris, Wayne County; I. D. G. Nelson, Allen County; Archibald Simpson, Knox County; John Snepp, Johnson County; John Pierce, Wayne County; W. H. Ragan, Putnam County; W. G. Stevens, Wayne County; Ashael Stone, Randolph County; E. Y. Teas, Wayne County; John C. Teas, Henry County, and John W. Tenbrook, Parke County. Of these only four—Thomas B. Morris, W. H. Ragan, and the Teas brothers—are now known to be living.

The officers elected at that time were: President, John A. Matson of Putnam County; Vice-Presidents, William Miller, St. Joseph County; Barnabas C. Hobbs, Parke County; Oliver Albertson, Washington County, and Lewis Jones, Wayne County; Treasurer, J. C. Teas, Henry County, and Secretary, W. H. Loomis, Marion County.

HORTICULTURAL REMINISCENCES.

GRANVILLE COWING, MUNCIE.

My acquaintance with Nature has been long and pleasant—covering a period of seventy-five years. When five years old I often wandered among the hills around my home in West Virginia, gathering fruits and flowers, and I was soon able to identify almost every tree and shrub near my home. It was probably in 1830 that I first saw the tomato as it grew near my path to school from a chance-sown seed. The fruit was red and very handsome, but I was warned not to touch it, as it was poisonous. I saw it no more until ten years later, when I met with it on the table of General P. A. Hackleman,* in Rushville, Ind., who regarded it as a great delicacy, and as one of the last and best gifts of Providence to man.

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*General Hackleman was the only general officer from Indiana who fell in battle at the head of his men during the Civil War.

He was not a careful gardener, but never failed to keep his tomato plants well cultivated.

Sixty-five years ago I planted my first bed of strawberries in Fairfield, Ohio, with wild plants taken from the banks of Mad River. The sight of a basket of wild strawberries in the hands of a neighbor—the first I ever saw—filled me with admiration, and induced me to cultivate them. I was a boy, then, and changed my home too soon to see my plants fruit. The first bed of cultivated strawberries I ever saw was in Rushville, Ind., about the year 1844. It was a small one and owned by W. D. M. Wickham, printer. I believe some of his neighbors regarded him as decidedly eccentric, if not a "little off," for engaging in such work. When 29 years old I planted my first garden in a suburb of Washington, D. C. My strawberries were of foreign varieties only. British Queen, Victoria and Alice Maude were the best of them and were very large, delicious and beautiful. Some of their best berries would range from five to six inches in circumference. William Cammack, a noted horticulturist of Georgetown, D. C., grew the first strawberries I ever saw in market. They were of the varieties I have named, and were remarkably fine, and often sold in the Washington and Baltimore markets for 75 cents per quart, while wild strawberries brought only 12½ cents per quart. All of the foreign varieties I ever cultivated were self-fertilizing kinds, and when transplanted to Indiana soil required too much petting to be profitable. In 1852* A. J. Downing, the greatest landscape gardener this country had yet produced, came to Washington to superintend the planting of some new grounds near the White House. Verbenas, phlox, petunias and portulacca were all then comparatively new flowers, and beds of them planted by him in Lafayette Square, near the White House, were novel and very beautiful, and admired by thousands. The sight of those beds gave me a new conception of the beauty of flowers, and I expended much pleasant labor the next year in growing some fine beds of the varieties I have named. One circular bed of verbenas, ten feet in diameter, and thickly planted with Robinson's Defiance, was covered with the intense scarlet flowers of that variety for fully four months, and was the finest bed of verbenas I have ever seen.

In 1853 the wonderful vegetable productions of California began to be known and appreciated in the Eastern States, and specimens of them were occasionally sent to D. Jay Browne, who then superintended the distribution of Government seeds. I was in his office one day when I saw him take from a drawer a single Irish potato, recently brought from California, which was round and very smooth, and which weighed six pounds. I asked him what disposition he intended to make of it. He replied that he intended to send it to the Soldiers' Home, near Washington, and have it planted there. I saw him at the close of the next season and asked him to tell me of the results of his experiments with that potato. He replied that it had been planted and produced several tubers, but that the best were no larger than ordinary marbles!

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*Downing perished in the flames on the steamer Henry Clay, on the Hudson, in 1852, as he was returning from Washington to his home in Newark, N. Y.

A large rose garden was located midway between my home and place of business, and it soon became a favorite place in which to pass my leisure moments. All well-known roses were extensively grown there, and I soon became acquainted with the best varieties. The first hybrid perpetual roses originated only about thirteen years before that time, and among the best of them were Baron Prevost and La Reine. About three years later Giant of Battles came from France. It surpassed in beauty all preceding scarlet varieties, and was soon generally disseminated, and for many years maintained its place as the best scarlet variety until displaced by General Jacqueminot. I planted roses in a circular bed ten feet in diameter, which was well enriched to the depth of twenty-four inches with burnt sod and stable manure, which, when two years old, was remarkable for its beauty. Some of the worst enemies of the rose here in Indiana were then unknown about Washington.

In 1857 I located near Muncie, Ind., where I still live, Jan. 1, 1904. Ill-health caused the change. Forests then surrounded me; the dirt roads at times were almost impassable, and my health was wretched; but I was determined to live long enough if possible to see the shrubs and trees I had purchased flower and fruit after planting; and I have no doubt I owe the long extension of life I have since enjoyed to that determination. I soon filled my garden with the best roses, flowering shrubs and bedding plants and in time of drought often carried water to them on moonlight nights until near midnight, and in that work I was unconsciously regaining my lost health. The strawberry has always been my favorite small fruit. McAvoy's Superior and Longworth's Prolific were the first varieties I planted, and were the first generally cultivated in eastern Indiana. They were seedlings, for which Nicholas Longworth paid $300, which was considered a remarkable price at that time, but which now would be considered a trifle for a very fine new variety. They are no longer grown here, but Longworth's Prolific is still a standard variety in California. They were displaced here in 1861 by Wilson's Albany, which for many years filled our markets and is still largely grown in many sections, but here it gave way to Crescent, which was succeeded by Bubach, Warfield, Haverland and Gandy. I believe I was the first grower to supply Muncie with strawberries, beginning in 1858. My first plantings were restricted, as the town was small and its people had yet to learn the value of the strawberry, and bought them sparingly while acquiring a taste for them. During the war all my berries were sold direct to the consumer, and an order from a single person for more than a bushel was considered a large one. Before natural gas was discovered I sent many of my berries to agents in neighboring towns. Twenty-three years ago my best berries sometimes sold in Indianapolis for $4.50 and $5.00 per bushel. When I began to market strawberries, boxes for them were not used here, and they were picked and sold as wild berries were. The first quart box factory I ever heard of was in Burlington, N. J., from whence I obtained a supply of excellent boxes. The first marked improvement in the blackberry was the Lawton, which was sent out in 1857. Kittatinny followed it, and was generally considered better. Snyder, on account of its hardiness and productiveness, has for some years been the most popular market variety.

In my Indiana home I grew all ordinary field crops, but my most pleasant hours were spent among my flowers and strawberries. Among flowers, roses and the common white lily (Lilium Candidum) were my favorites. I first saw the latter in a neighbor's garden in Washington, and after noting its beauty and fragrance, my first thought was that it was the finest of all bulbous flowers. My beds of flowers were beautiful, but to many they seemed out of place with their rude surroundings, and I suspect that some of my neighbors thought I was slightly "daft" in some of my ways. But I sometimes met with an enthusiastic sympathizer. Carriages in 1859 were but seldom seen on my road, but one, on a summer day, while passing my place, stopped while I was among my flowers and a gentleman of fine appearance and most graceful manners emerged from it and expressed his astonishment at seeing such beautiful flowers in such a wild place. He passed on, but what he said made a deep and pleasant impression on my mind. It is always safe to praise a flower grower's pets. Twenty years later I again met that gentleman at a meeting of the Indiana Horticultural Society. I first attended the annual meeting of that Society, in 1877, which was held that year in Purdue University, and thereby greatly added to the pleasure of my later life; for it has indeed been a pleasure to know and associate with the pure-minded, genial and intelligent men and women who have composed that body. W. H. Ragan, long the efficient Secretary of that Society, first induced me to become one of its members—for which I owe him many thanks. At that meeting I identified the gentleman who twenty years before alighted from his carriage near my garden and so warmly admired my flowers in the person of Sylvester Johnson—a man of most agreeable presence and for many years one of the Society's most efficient presidents. My meeting with him was a most agreeable surprise, and was the beginning, I believe, of a friendship which time only strengthens. I then, for the first time, met Dr. Allen Furnas, one of the most kind-hearted and genial men I ever knew, who always seemed to carry sunshine with him, and who was the possessor of a vast store of horticultural knowledge, which he was always anxious to impart to a novice. He was cheerful and witty, but his wit, like that of Charles Lamb, contained no sting. He was then quite old, but stalwart and very alert. He died in California a few years ago, where he removed to benefit his wife's health. A photograph of the members of the Indiana Horticultural Society was taken, after his removal, and sent to him. To give an idea of his quaint wit, I quote, from the Indiana Farmer, the following from his letter acknowledging the receipt of that picture:

"The picture represented a group of good-looking men and women, and smells of apples. One of them with a hat on would do for an agricultural editor. A gray-bearded, bald gentleman looks much like a horticultural president I knew 'back East.' Two other gentlemen with but little foliage on top of their heads look like horticultural scribes. It can not be that being an officer would make one bald! There is a man standing in front with a book in his hand who has a good covering for his caput. Several persons in the picture look like they could dig trees, prune, bud and graft, and I have no doubt are lovers and growers of good fruits. There are some faces in the group that I do not identify, but I feel very much inclined to step up and shake hands with the whole crowd."

The "one who would do for an agricultural editor" was no doubt his old friend, J. G. Kingsbury, the able and veteran editor of the Indiana Farmer, who has for many years attended the meetings of the Society.

I have had more pleasure in horticulture and its kindred pursuits than any other path I have ever trodden. The passage of a generation from the cradle to the tomb seems like a brief day to the aged; but it is a great boon to be allowed to lift our heads above the wave of time and view this fair world, even for a brief existence. The days of our youth pass "like a glorious roll of drums!" In their midst we constantly look for something better, which never comes, until we are at last aware that we have unconsciously sipped the sweetest wine of life.

THE TRANSFORMATION OF THE HEARTH.

MISS GRACE JULIAN CLARK, IRVINGTON.

[Paper read at the June, 1903, meeting of the Marion County Horticultural Society held at the residence of W. B. Flick.]

There is a painting by Gabriel Max, now the property of Prof. Ernst Haeckel, the German scientist, which represents three beings, in that uncertain stage between the ape and man. If you have ever seen a copy of this picture you see it now, for it possesses a fascination which indelibly fixes it in the mind. The father stands beside a tree, in an attitude of alertness, ready to defend those dearest to him, the mother and child. There is strength and power in his figure, but the animal so largely predominates that we turn away from the dull eyes, looking stupidly out on the world around, to the face of the mother, with her baby in her arms. It is here that we see the promise of that tenderness and self-effacement which at length came to distinguish humanity from the brutes. As one studies this picture, not only does the whole story of evolution, the ascent of man, which Mr. Drummond tells about so beautifully, unroll itself before one, but the sympathetic eye of the imagination sees there the earliest hearthstone, the tiny germ of the home of man. Another significant thought, closely connected with this, is, that it is the woman's face that is pleasing. In her, through mother-love and suffering for others, did the soul first appear; a very small and feeble ray, but slowly growing till it communicated itself to her sons, and in time resulted in altruism, with its blessings to mankind.

But whether or not the first soul found its lodgment in a woman's form, it is a fact that the condition of woman has been the gauge and measure of human progress throughout the ages, and the transformation of the hearth presupposes and depends upon the transformation of woman. That a very marked change has taken place in the condition of woman and the home during the present century is a fact much commented on in our day. Whether the change is a fortunate one, to be accepted and rejoiced in; or whether it is a necessary evil, out of which good will one day work itself; or whether it is a real calamity, greatly to be deplored, are three views held by three classes of people.

It has become the fashion of late in some quarters to take the view that the change is a lamentable one. The passing of the center-table and of the old-fashioned grandmother and her cap, and the diminished birth returns, have been dwelt on eloquently and at length, as signs of the degeneracy of our times. Women have been arraigned for belonging to too many clubs, classes and philanthropic societies; a frightful picture of the home has been set before us, where the husband is an effaced sort of creature, the children, if there are any, all running wild, and a general air of neglect and chaos prevails. We are almost ready to express gratified delight in the old Latin epitaph on the model woman, "*Domum servarit, lanam fecit*"—she stayed at home and spun wool.

The *laudator temporis acti* is always with her, and he is not to be despised. He calls the attention of the busy, rushing world, full of its own conceit, to the past, and if, in his enthusiasm, he puts a gilding on the past, and touches it up so that the original is often lost sight of, he nevertheless does well.

Less enthusiastic than this critic is he who, lamenting the present changed condition of things, yet seeks to reconcile himself by the reflection that great good often brings in its train some evil, which must be endured patiently for the sake of the end in view. He argues thus: In the old-fashioned days of domesticity it is easy to see why the home, and the grandmother, and large families flourished. Woman knew nothing of business, nothing of politics, little of books. Her activities were all necessarily within a circle circumscribed and dwarfing. The purely domestic life had its charms, of course, but it was one-sided. With the invention of labor-saving machinery and the wholesale manufacture of many things which were formerly produced in the home, woman's nature was forced to turn away from its exclusive and single channel to a wider one, with various branches; and, as a necessary incident to this transition, it may be that domesticity has been slighted. But the advancement of women in intellectual and moral strength, even if it necessitate a check on the increase of population, is not to be regretted. If they should make further strides towards a still more advanced position, and it should work to the serious detriment of domestic life as it ought to be, it must simply be accepted as an incident of the transition from the old order to the new. When, as a result of the new freedom given to women, real evils shall appear, as they may, they will necessarily correct themselves, for reforms do not go backwards, and we shall reach the condition of womanhood in society as it ought to be. Then, too, we shall have the ideal home, and it will be a better, and a wider, and a not less loving home than we had in the old days. The full development of man or woman can never be fatal to the affections; they will assert themselves always. So argues Critic No. 2, who also deserves attention and consideration.

The critic who accepts the transformation of the hearth as a fortunate circumstance, and rejoices in the new conditions, asks us to go back for a moment to the good old days before there was any change, when the white-capped grandmother is supposed to have flourished, a large family was the great desideratum in a well-regulated household, and the home was in its so-called palmiest day.

Rousseau, whose *Emile* created a great sensation a little more than a hundred years ago, on account of his advanced ideas on a number of questions, wrote that men should be active and strong, women passive and weak. "It is necessary that we should have both the power and the will, and that the other should make little resistance." This being established, it follows that woman is expressly formed to please man. The man ought to please in his turn, but "his great merit is in his power, and he pleases merely because he is strong." This reformer proceeds thus: "Every daughter ought to be of the same religion as her mother, and every wife of the same religion as her husband; for, though such religion should be false, that docility which induces the mother and daughter to submit takes away, in the sight of God, the criminality of their error. As authority ought to regulate the religion of the women, it is not so needful to explain to them the reasons for their belief, as to lay down precisely the tenets they are to believe.'

Although such a woman might make a beautiful looking grandmother, we can not imagine her conducting the affairs of home in any very satisfactory way. She certainly could never be reproached for being masculine, or getting out of her sphere; but was she fitted to superintend the education of even her small children, and could she inspire any one with respect? She probably possessed the "shy graces" that are sometimes spoken of as being lacking in the modern college-bred young woman. There seems to be a certain charm that in the minds of some good people is inseparable from delicate weakness and innocent ignorance. But the only true and genuine "shy graces" are not confined to any sex or any age. They are the fruit of that real gentleness of spirit and refinement of feeling that are the basis of true modesty. They are the "angelic manners and celestial charms" of which Petrarch writes that the very memory saddens while it delights, because it makes all other possessions seem trivial. The women whom we love and admire most have these graces; and they are also the possession of our ideal men. They were among the great qualities of Mr. Lincoln, and they sat easily on Tennyson, Browning, and the sad Mazzire. There is no reason to suppose that the greater freedom given to woman is destined to mar her nature or deprive it of any charm. "An instinct no more pervasive than this, a charm that goes no deeper, can hardly be worth deserving."

In the days of Rousseau, and even later, Dr. Fordyce's sermons used to be presented to young ladies. He tells them that "men desire in every woman soft features, and a flowing voice, a form not robust, and demeanor delicate and gentle." Speaking to women whose husbands habitually neglect them, he continues: "Had you behaved to them with more respectful observance; studying their humors, submitting to their opinions, giving soft answers to hasty words, making it your daily care to relieve their anxieties, to enliven the hour of dullness, and call up ideas of felicity, your home might at this day have been the abode of domestic bliss."

This is very quaint, printed with the long ss; but a little of it goes a great way. Miss Austin's young ladies read Dr. Fordyce's sermons, and with their endless chatter about marriage and settlements, balls and dinners, are interesting because they enable us to see how enormous a stride we have made since then. Charlotte Lucas' reflections on her engagement to Mr. Collins are extremely edifying: "Mr. Collins, to be sure, was neither sensible nor agreeable; his society was irksome. But still he would be her husband. Without thinking highly either of men or of matrimony, marriage had always been her object; it was the only honorable provision for well-educated young women of small fortune, and however uncertain of giving happiness, must be their pleasantest preservative from want!"

Dr. Gregory's Legacy to His Daughters was another book much esteemed in the latter part of the nineteenth century. This wise parent counseled his girls not to dance with spirit, lest the men who beheld them might suppose that they were not entirely dependent on their protection, or else might suspect their modesty; and he added: "Be careful in dis-playing your good sense. It will be thought you assume a superiority over the rest of the company. But if you happen to have any learning, keep it a profound secret, especially from the men, who generally look with a jealous and malignant eye on a woman of great parts and a cultivated understanding." Solomon's advice to "get wisdom, and with all thy getting get understanding," was supposed to apply to men only. Those were the days when it was affirmed that "women could not be instructed in the system of botany consistently with femalê delicacy." Dr. Johnson "thought portrait-painting an improper employment for a woman. Public practice of any art, and staring in men's faces, is very indelicate in a female." And Boswell also assures us that he considered literature as unsuited to a "delicate female" as painting. Of a literary woman who was reputed to be paying great attention to dress, be observed that "she was better employed at her toilet than using her pen." This remark might, indeed, be made with great propriety of some of the literary women of our own times.

The accomplishments of the wife of the Vicar of Wakefield were very fully stated when her husband said that "she could read any English book without much spelling; but for pickling, preserving, and cookery, none could excel her." He never disputed her abilities at making a goose pie, but he begged her to leave argument to him! And Mrs. Primrose felt that praise could go no further when she said that her girls had a "good education." "They can read, write, and çast accounts; they understand their needle, broad-stitch, cross and chânge, and all manner of plain work; they can pink, point and frill, and know something of music; my eldest can cut paper, and my youngest has a very pretty manner of telling fortunes upon the cards."

It is no wonder that Mary Wollstonecraft lamented the insipidity of the conversation of those "women whose time is spent in making bonnets, and the whole mischief of trimmings, not to mention shopping, bargain-hutning," etc. Abigail Adams felt herself alone much of her life so far as the companionship of women who could understand and sympathize with her was concerned. Not that she had had early educational advantages, for she grew up at a time when, as she asserted, "it was fashionable to ridicule female learning," and she often expressed regret that she was not better fitted to instruct her children. But she taught herself history, French, and many other things in order to aid them; and such were her wisdom and goodness and high character that she was a constant stimulus to them.

In one of those charming letters to her husband when he was in attendance at the Continental Congress, Mrs. Adams begged him, while engaged in law-making, to "remember the ladies, and be more generous to them than your ancestors. Remember, all men would be tyrants if they could. If particular care and attention is not paid to the (us) ladies, we are determined to foment a rebellion, and will not hold ourselves bound by any laws in which we have no voice or representation."

From all that can be learned, the home of John and Abigail Adams was one of the kind which we like to picture to ourselves. There was, in the first place, a perfect union, founded on mutual esteem and love. One did not look up to the other, because both looked straight across. The constant and unwearied attention of father and mother to the training of their children in every virtue and grace may well be a model for every age. "Our lovely babes" are daily the theme of John Adams' thoughts in the midst of the cares of state; and she, never neglecting her little kingdom, was constantly writing to him concerning questions of government, liberty, and the public welfare. Both were domestic, but home did not bound their interests. Identical in opinions and purposes, there existed between them a delightful feeling of equality and comradeship in all the affairs of life.

Such homes are much less rare nowadays than they ever were before. The average woman is better fitted to do her part in the making of home than she was one hundred or fifty years ago. And the average man is learning that a part of his duty lies here also.

In those days when the home marked the boundaries of a woman's world, she had no legal existence. As an individual her rights before the law are now fully recognized; and, although her political disabilities have not yet been entirely removed, she can acquire and hold property and carry on any sort of business. Not only is she an equal partner in the home, but it is probably true that the education of the average American woman today, as far, at least, as a knowledge of books is concerned, is superior to that of the average man.

Mr. Ruskin said, not so many years ago, that the average woman's idea of life was to dress herself and her children becomingly, and leave cards on her acquaintances. That was her "real notion of the matter," he said, "and modern Christian women's generally, so far as they have got any notions at all under their bonnets and the skins of the dead robins they have stuck in them." If Mr. Ruskin's picture was a true one we have traveled far since then. Such a woman would certainly justify Petruchio's boast. But Catherine is no longer pleased to be considered "my ox, my ass, my anything;" and Petruchio now blushes that such words ever passed his lips.

The woman with such a view of life as Mr. Ruskin described could not have an ideal nor a real home. But this is not the woman of the present day. She has a home, and a center-table, and, generally, children. If she belongs to clubs, she does not on that account neglect domestic duties. I am told that even the woman whose name appears on the lists of twenty-six clubs is a perfect housekeeper; and, though I can not vouch for it, and it seems incredible, we must remember that there are geniuses, and sometimes we live very near them in ignorance of the fact.

If boarding-houses and flats are on the increase, and there are many women who contribute nothing materially, intellectually, or morally, to society, let us bear in mind that many flats are real homes, though surely not the most desirable, and good-for-nothing women will grow fewer as the true idea of womanhood asserts itself. There will always be silly women, who care more for an empty social position than for home and children, who find in extravagance of living and dress their "only expression of a vague desire for the beauty and elegance of life." Such specimens are no more discouraging nowadays than "all the generation of thoughtless fair who have danced idly down the forgotten past." We can not judge correctly by them, for if they had been real forerunners we should not have advanced, but stood still, or gone backwards. I prefer to believe that we are the descendants in a direct line, through long centuries of wandering and travail, of that virtuous woman whose price was far above rubies:

"The heart of her husband trusteth in her,
And he shall have no lack of gain.
She doeth him good and not evil
All the days of her life.
She seeketh wool and flax,
And worketh willingly with her hands.

* * * * * * * *

She considereth a field and buyeth it;
With the fruit of her hands she planteth a vineyard.
She girdeth her loins with strength,
And maketh strong her arms.
She perceiveth that her merchandise is profitable:
Her lamp goeth not out by night.

* * * * * * * *

She spreadeth out her hand to the poor;
Yea, she reacheth forth her hands to the needy.

* * * * * * * *

Her husband is known in the gates
When he sitteth among the elders of the land.

* * * * * * * *

Strength and dignity are her clothing,
And she laugheth at the time to come.
She openeth her mouth with wisdom;
And the law of kindness is on her tongue.
She looketh well to the ways of her household,
And eateth not the bread of idleness.
Her children rise up, and call her blessed;
Her husband also, and he praiseth her."

I know that some of her descendants are among you, for report has gone abroad of the versatility and enterprising activity of your club women. We have heard of your work in the Free Kindergarten, among the poor, in the management of the Orphans' Home, in temperance and the churches. We were rejoiced to learn, at the Connersville meeting, about your "Classes for the Public," and I hope other clubs were inspired to go and do likewise.

EARLY TRANSPORTATION FACILITIES OF INDIANA, "IN THE DAYS OF AULD LANG SYNE."

[Read at the Marion County Agricultural and Horticultural Society.]

This is the theme allotted. As this is a kind of class meeting of the old folks, so, as in the Methodist class meeting, experience is the test of the speaker. So for this occasion the experience of the trials—troubles traversing the highways of Indiana, will mainly be the record, "quorum pars fui." (That is, about seventy-five years past.) Prior to that time, history-tradition must supply.

By the acts of the General Assembly of Indiana, the site of the seat of government was fixed at Indianapolis, approved January 6, 1821. Corydon, Harrison County, bordering the Ohio River, had been the capital since 1816. Public opinion demanded a central location. From the year 1816 the attention of the Legislature had been directed to the facilities of better roads throughout the settled portions of the State.

An act approved January 9, 1821, three days after Indianapolis was selected as the capital, authorized the location of a road from Lawrenceburg to the "seat of government."

In the session of the Legislature in 1821-22, a law was enacted authorizing quite a number of roads that found their terminus at Indianapolis, notably Horseshoe Bend, via Paoli, Palestine, Bloomington; Mock's Ferry, on the Ohio River, via Corydon, Salem, Brownstown; Madison, via Vernon, Columbus; Lawrenceburg and Brookville; Oxford, via Connersville, and points on the Ohio State line, via Richmond. This act appointed Christopher Harrison as commissioner to apply for and receipt from the United States government $100,000, known as the 3-per-cent. fund, which as commissioner he was to distribute among the various special commissioners for the roads designated by the act, to build their respective roads.

In the subsequent sessions of the Legislature other roads were authorized as the settlements of various parts of the State demanded. In 1835 the State determined on a universal system of roads, railroads and canals, and passed laws which would have made each village, town, city—in fact, every farm—neighbors to Indianapolis and the various commercial centers of business in the United States.

Quite a different thing to have transportation on paper, instead of on land and water.

Indiana marked uphill on paper, but downhill on fact.

At first, trails, instead of roads. Trails were marked by chips cut out of the trees. After a time roads were so marked. One such has lingered to our time. The "Three Notch Road" down Meridian Street, south through Johnson, Brown and other counties to the Ohio River, is an evidence. It is so known in Marion County and took its name from the "three chips" made by the ax on the trees.

My grandfather, Matthias R. Nowland, came from Frankfort, Kentucky, in October, 1820, reaching Indianapolis in November. He crossed the Ohio River at the mouth of "Little Kentucky River," a short distance east from Madison, struck a trail that led to Versailles, Ripley County, and then struck "Berry's Trail," that led him to Indianapolis. His transportation consisted of a six-horse wagon, in which were the heavy pieces of furniture, horses, on which feather beds were lashed, forming platforms for the children to perch on, and two horses with sidesaddles for his mother and wife, reminding Uncle John of a "cavalcade of Bedouins." On one my mother and Uncle John were riding; the horse stumbled; children were almost smothered in the feather bed avalanche on which they were seated.

In time trails gave place to roads. The classification would truthfully read, "Swamp, corduroy, ruts, sink-holes, once in a while road."

These were the greetings of the immigrant who sought the forest-clad wilds of Indiana. Common sense, the best kind of sense, was the school teacher that taught where were the best roads, the best water, the best camping places, the best site for the log cabin—the best residence that has been devised for human kind, warm in winter, cool in summer.

With such roads, such trails, no gravel, no turnpikes, emigrants flocked to the forest-clad soil of Indiana.

Everything in Nature's normal scenery and beauty. No bridges, sometimes a ferry, sometimes a ford; swimming horses always at a premium. If the rivers and creeks were out of their banks, camp till the water would run out.

God honored the noble men and still nobler women that dared the solitude of the forest, the Indiana's stealthy approach, the cries of panther, wolves, wildcats, the deadly rattlesnake, copperhead, water moccasin, to make of Indiana a garden spot. Delawares, Miamis, Shawnees must give place to the civilization of God's chosen people.

My grandfather used eight days to get from the Ohio River to Indianapolis, about eighty-five miles. When our family went from Indianapolis to Jeffersonville in May, 1836, we traveled over good roads, the best that Indiana furnished. Hard foundation, at times well graded, no bridges, ferries over streams, splendid weather, light carriage with two horses, and a saddle horse, that those in the carriage might rest a spell.

With all these traveling charms, we left Indianapolis, 10 o'clock a. m. Tuesday, via Franklin, Columbus, Rockford, Brownstown, Salem, Providence, and reached Jeffersonville at 3 o'clock p. m., Friday, and were congratulated over our remarkably quick trip. About 125 miles we traveled. There were then no railroads in the State. Now the same cities are 108 miles apart. The time employed by the fastest train is three hours.

The State of Indiana in 1835 asked the United States government to detail army officers competent to the task, whose duty was to survey and locate a route from Indianapolis to the most feasible point on the Ohio River, where a railroad could be most speedily and economically built. This was bringing into practice an insane utterance of Gov. James Brown Ray who, in a Fourth of July speech in 1831, ventured to say, "Before twenty years are past, freight would be brought by steam wagons to Indianapolis from the Ohio River." That remark sealed Gov. Ray's sanity. He never recovered from the taint of an unsound mind.

The detail was made from the army. Madison, on the Ohio River, had brainy men in Governor William Hendricks, Joseph G. Marshall, Jeremiah Sullivan, Michael G. Bright, William McKee Dunn and others influential in the politics and commerce of the State. Madison went wild over the men detailed for the survey: dinners, balls, all the round of hospitalities were lavished upon the officers.

The survey embraced Lawrenceburg and Madison from Indianapolis, and from Columbus to Jeffersonville. When completed the officer in charge reported that Madison was the most feasible point on the Ohio River that was available as a railroad route, notwithstanding the "big hill" that must be excavated to let the railroad down to the river. The report of the officers was taken a little like the laws of the Medes and Persians, "not to be broken or amended."

Samuel T. Gillette lived in Madison. He was a Lieutenant in the United States Navy. Influences were brought to bear at Washington, and Gillette was detailed as surveyor in charge of the railroad from Madison to Indianapolis. A long acquaintance with the county around Madison made him especially adapted for his duties as engineer in charge. Taking the notes and reports of the army officers, after careful study, Gillette knew of a creek that would cross the contemplated survey a short distance north of the hill top, and by following the creek, reach the river bottoms, two or three miles west of Madison, from which point Madison could be reached on a level with the town. He reported his survey to the Board of Directors, but they overruled his survey and insisted in following the survey of the army officers. This conclusion made, Mr. Gillette promptly resigned as engineer, saying, "Gentlemen, I won't be a party to a scheme for swindling the State of Indiana out of at least one hundred thousand dollars."

He resigned, went back to the navy, and in 1837 he went on a cruise in the Mediterranean Sea had leave to go to Jerusalem, where the teachings of his mother's Bible were reinforced by the footsteps of Jesus, became converted, joined the Indiana conference as a preacher and went to his reward in heaven as Rev. Samuel T. Gillette.

The report of the army officers was false in another way. The notes that they furnished of the survey between Columbus and Jeffersonville were filed in the office of the Secretary of State at Indianapolis, and when the Jeffersonville Railroad was incorporated in 1849, William G. Armstrong, the President, remembering the former report went to the office of the Secretary of State, found the notes, and the road from Jeffersonville to Columbus was laid on the same route, saving three miles in the windings of the Muscatitack River.

The building of the Madison road bankrupted Indiana. After about four years, the State turned it over to a corporation of individuals. It took one year to extend the road to Columbus, another year to Edinburg, and fifteen months from Edinburg to Indianapolis where Jerry Johnson, standing on a pile of lumber where the Old Madison Depot stood on South Street, seeing the train coming out of the valley of Pleasant Run, exclaimed, "Here she comes, hell on wheels."

September, 1847, your speaker was on the first passenger train that came to Greenwood. There was a turntable at Franklin. The train was reversed, and we were backed up to Greenwood. There the stage met us, took us to George Noble's, the stage stand, where we had a delightful Hoosier dinner. This over, Samuel Merrill, President of the Madison railroad, started for the railroad grades, a hundred yards east. We called, "Mr. Merrill won't you go with us on the stage?"

His reply was, "John, the boys are laying the track on the road. I must walk up and see how they are getting on." Honor to the name of Samuel Merrill, President of the Madison Railroad, whose obligations to duty made him walk ten miles on the roadbed to see "how they were getting on." What president of 1903 would do so? When the railroad was finished the fare was $4.50, time four hours; now $3.20, time three hours.

Concord stages, in late spring, summer, and early fall months, and mud wagons in other months.

An experience, January, 1848: Indianapolis, Indiana, 10 a. m. Mud wagon for Greencastle; three miles gravel road to Eagle Creek. One thousand pounds mail. Husband, wife, two children and your speaker passengers. Four Kentucky horses drawing; way-bill instructions, "Put this coach through in good style and time."

Just beyond Eagle Creek, first mud-hole. Pried the coach out. Freezing weather; mind made up easier to walk than pry. Left Uncle Sam's mail coach, called mud wagon, walked to Bellville, got there just as supper was called. Went in, ate, and was ready when the coach came. Stage stand west, one mile east of Stilesville, twenty-eight miles from Indianapolis, time 9 p. m. Eleven hours on the way. Awful. (I use this word in its original signification.) Roads freezing, letting the horses go in half-knee deep, half way up to the axles on the coach. Four horses stood ready to be hitched on. An expostulation: "Driver, are you going on this night?" Passengers nearly frozen; dark as midnight; not well for walking; the first time the words "you uns" reached the ear.

"Well, if 'you uns' will say that it is unsafe to go on, will stop till morning." "Hand out your waybill."

For the first time my handwriting was placed on a "public document." Husband and wife and your speaker "certified that we were passengers in the coach named in the waybill, that it was unsafe to go on this night."

Went into the comfortable stage stand, half frozen; warm fire, two story featherbed, blankets, coverlets, etc. Breakfast at 5 o'clock next morning. On the coach before 6 o'clock a. m. Reach Putnamville, 16 miles, at 12 m. Took dinner. Knew the driver that went through Greencastle to Crawfordsville.

Said "Jimmie, how soon will you start?"

"Five minutes."

"Leave my carpet bag at Mrs. Elders."

"All right."

Took Walker's line, and beat Uncle Sam's line one hour. Five miles to Greencastle; from Indianapolis, traveling time 19½ hours; miles forty-five. One part of the night sleeping on two-story featherbed about seven hours. And all because of Indiana's ways of transportation. The year before, on horseback, a similar experience.

No one of the present age has any idea of the ways of getting around over Indiana.

At that time railroads on paper were legislated into being, canals on paper were enacted. The Whitewater, the Central, traversing the valley of White River from Muncie and was operated from Broad Ripple to Waverly, at the Bluffs in Morgan County, and the Wabash and Erie Canal, connecting Lake Erie at Toledo with the Ohio River at Evansville, stand as monumental evidences of Hoosier partial financial failures.

The Whitewater Canal ran from Cambridge City down the Whitewater Valley, through Connersville, Laurel, Brookville to Lawrenceburg, furnishing mill sites, and ready communication for the produce of merchandise, machinery and everything needed to embellish the "Hoosier Nests" that found lodgment on the most beautiful scenic river of Indiana.

Now a branch of the "Big Four" System traverses the firm banks of what was one of the noted canals of Indiana.

This canal opened up to the world the most lovely, fertile, enjoyable section of our loved State.

We have here in Marion County, the relic of "The Central Canal" connecting the ancient town of Broad Ripple with the capital of Indiana. To us it speaks of "the dam" (no profanity), "bass fishing," "big cut," "skating," "ice," and the possible hope of supplying water to the city in the event of a great fire, when the pumps of the Indianapolis Water Company fail to fill the watermains of the city.

Some of the oldest inhabitants remember the transportation of passengers, lumber and wood. Many recall the fishing parties and frolics in the flatboats that used to ply the water of the "raging canal."

The "Wabash and Erie" was of infinite service in developing the lands of the Wabash Valley, furnishing an outlet for timber, lumber, wheat, etc., from Lafayette to Toledo, and a corresponding influx of merchandise, machinery, that make the Wabash Valley one of the most desirable sections of Indiana.

It was partly navigable from Evansville north to Daviess County. My memory is that a large section of the canal was not used for navigation between Washington, Daviess County and Lafayette.

From Lafayette to Toledo regular lines of passengers and freight boats were employed for years. This was a relief to the people of those parts of Indiana neighboring on the canal. One trip from Logansport, Indiana, to Defiance, Ohio, is indelibly impressed on my memory. Leaving Indianapolis at 10 o'clock at night in a Concord stage coach, four horses attached, we went north on the Michigan Road bound for Logansport.

About four miles had been passed when we came to the usual watering place on the edge of the road. Black as midnight. Four passengers, husband, wife and child not over a year old. My place on the stage was with the driver. Always cultivate the acquaintance of the driver on the stage, the captain and pilots on boats.

The woman was the most quarrelsome specimen of humanity that has crossed my path, and her husband seemed to be the target for her complaints. Glad I was on the outside with the driver. After watering the horses, in an effort to get back on the traveled road, the right wheel struck a stump, and over went the stage. "Oh my baby is killed, my baby is killed," were the screams and screeches that poured out of that woman's mouth. Opening the door of the stage, out came the man, out came the woman, and the baby never woke up. How it could sleep when that woman was quarreling with her husband I never could guess. Nor can I now explain the mystery. Suffice it to say, if that woman had broken her arm, it would have been retributive justice for the past, and a judgment for the rest of the night, for she did not cease quarreling with her husband till we rested at the tavern kept by Col. Vigus at Logansport, the next morning, where a Hoosier breakfast awaited us.

About 7 o'clock p. m. the horn of the canal boat summoned us, forty to fifty passengers, out of the cabin, on the deck. The cabin boys made up the beds or bunks. Rouse up by daylight. Bunks and beds gave way to the breakfast tables. Good victuals. On deck. Three horses tandem made about five miles an hour. Scenery beautiful. Air delightful. Quite a difference as compared with the United States mail coach.

Travel too slow; might do for freight. As it was, the investment in the Wabash and Erie Canal opened up the vast resources of the Wabash Valley and paved the way for the Wabash Railroad on the banks of the canal, with the water power for mills and machinery as long as the banks of the canal stood to contain the water.

Such were the facilities for transportation that the people of Indiana had found, and were provided with, by the energy, hard labor, thrift and industry of the men and women who have made Indiana one of the foremost States of the Union.

We have had our difficulties, our trials, our hardships, all conquered by the common sense, industry, grace that Our Father has blessed our Hoosier family, both native and foreign-born, with. Those of us who have gone through the fight, see the victory all the way.

Glad are we to hand down the achievements from 1816 to 1903 as the offspring of the valiant men and women who have toiled and labored to transmit to the future the victories, the joys, the pleasures, the indwelling delights, that filled up the soul of those who have discharged their duty to humanity, to God.

Bad roads, slow travel, combined with an abundance of common sense, will work out an abundant harvest, notwithstanding the errors of human judgments.

Now, Pullman coaches, forty to seventy miles an hour, cars with capacity for sixty tons of freight. Even now, the railroads have their own time. No use for solar time.

Watt's old tea kettle must give place to Ben Franklin's lightning; trolley instead of coaches; lightning instead of steam. And all this in the lifetime of Indiana Hoosiers, who thank the Lord that they have found "pleasant pastures" within the parallelogram, bounded in the north by the Lake and State of Michigan, on the East by Ohio, on the South by the Ohio River and Kentucky, and on the West by the Wabash River and Illinois.

FOURTEENTH ANNUAL REPORT

OF THE

Indiana State Dairy Association.

ANNUAL MEETING

HELD AT

PLYMOUTH, MARSHALL COUNTY,

DECEMBER 10-11, 1903.

(Stenographic Notes by A. O. Reser.)
Edited by H. E. VAN NORMAN, Secretary.

OFFICERS OF THE INDIANA STATE DAIRY ASSOCIATION.

PRESIDENTS.

C. S. Plumb, Lafayette, Tippecanoe County	1891-1893
Bartlett Woods, Crown Point, Lake County	1893-1894
W. S. Commons, Centreville, Wayne County	1894-1895
C. S. Plumb, Lafayette, Tippecanoe County	1895-1896
O. A. Stubbs, Lewisville, Henry County	1896-1897
S. B. Woods, Lottaville, Lake County	1897-1898
J. J. W. Billingsley, Indianapolis, Marion County	1898-1899
C. B. Benjamin, LeRoy, Lake County	1899-1900
C. S. Plumb, Lafayette, Tippecanoe County	1900-1902
J. M. Knox, Lebanon, Boone County	1902-1903
Samuel Schlosser, Plymouth, Marshall County	1903-1903
D. B. Johnson, Mooresville, Morgan County	1903-

VICE-PRESIDENTS.

Charles C. VanNuys, Franklin, Johnson County	1893-1894
J. M. Knox, Lebanon, Boone County	1894-1895
W. S. Commons, Centreville, Wayne County	1895-1896
Charles B. Benjamin, LeRoy, Lake County	1896-1897
O. P. Macy, Mooresville, Morgan County	1897-1898
G. W. Drischel, Cambridge City, Wayne County	1898-1899
J. V. Shugart, Marion, Grant County	1899-1900
J. M. Knox, Lebanon, Boone County	1900-1902
G. V. Woolen, Indianapolis, Marion County	1903-1903
I. B. Calvin, Kewanna, Fulton County	1903-

FIRST VICE-PRESIDENT.*

D. H. Jenkins, Indianapolis, Marion County	1891-1892

SECOND VICE-PRESIDENT.*

Mrs. Kate M. Busick, Wabash, Wabash County	1891-1892

THIRD VICE-PRESIDENT.*

C. B. Harris, Goshen, Elkhart County	1891-1892

SECRETARY-TREASURER.

Mrs. Laura D. Worley, Ellettsville, Monroe County	1891-1893
W. S. Commons, Centreville, Wayne County	1893-1894
H. C. Beckman, Brunswick, Lake County	1894-1897
C. S. Plumb, Lafayette, Tippecanoe County	1897-1898
H. E. Van Norman, Lafayette, Tippecanoe County	1898-

OFFICERS AND MEMBERS OF THE INDIANA STATE DAIRY ASSOCIATION FOR 1904.

OFFICERS.

President, D. B. Johnson, Mooresville.
Vice-President, I. B. Calvin, Kewanna.
Sec.-Treas., H. E. Van Norman, Lafayette.

EXECUTIVE COMMITTEE.

D. B. Johnson, I. B. Calvin, H. E. Van Norman; Samuel Schlosser, Plymouth; Mrs. M. B. Schenck, Lebanon.

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*In 1893 the offices of first, second and third Vice-Presidents were abolished.

MEMBERSHIP LIST.

ANNUAL MEMBERSHIP.

The following persons have paid one dollar into the treasury for 1904 membership:

Name.	*Town.*	*County.*
Alger, Sylvester	Wakarusa	Elkhart.
Barber, S. H	Chicago, Ill	
Benjamin, C. B	LeRoy	Lake.
Berg, John	Bremen	Marshall.
Billingsley, J. J	Malott Park	Marion.
Boyd & Drischel	Cambridge City	Wayne.
Burnside, T. C	Liberty	Union.
Byers Bros. Co	Rochester	Fulton.
Calvin, I. B	Kewanna	Fulton.
Carter, Mrs. O. E	Seymour	Jackson.
Collier, W. L	Anderson	Madison.
Compton, A. H	New Carlisle	Henry.
Dairy Queen Mfg. Co	Flora	Carroll.
Deacon, E. E	Plymouth	Marshall.
Dean, H. H	Guelph, Ont. Ca	
Dixon, Thos. Hepworth	Indianapolis	Marion.
Dowd, B	Chili	Miami.
Emerson, W. J	Poplar Ridge, N. Y.	
Felten, H. C	Wyatt	St. Joseph.
Felten, John M., Sr	Wyatt	St. Joseph.
Fidler, H. J	Lafayette	Tippecanoe.
Fitch, L. S	Oakwood	Laporte.
Friday, S. B	Milwaukee, Wis	
Furnas, R. W	Indianapolis	Marion.
Graverson, G C	Bremen	Marshall.
Gulman, Geo	Bremen	Marshall.
Handy, E. C	Anderson	Madison.
Hanneson, C. J	Berlin, Mich	
Hanning, E. F	Evansville	Vanderburgh.
Heilman, A. C	Evansville	Vanderburgh.
Hemenway, F. A	Zionsville	Boone.
Hirtzel, John	Crown Point	Lake.
Hoffman, Mrs. G. W	Harlan	Allen.
Holderman, J. G	N. Liberty	St. Joseph.
Holloway, A. V	N. Manchester	Wabash.
Holloway, Silas	N. Manchester	Wabash.
Hostetter, H. F	Plymouth	Marshall.
Hursh, J. W	R. R. No. 6, Ft. Wayne	Allen.

Name.	*Town*	*County.*
Jackson, J. A	South Bend	St. Joseph.
Jenkins, H., Jersey Bulletin	Indianapolis	Marion.
Jennings, A. A	Chicago, Ill.	
Johnson, D. B	Mooresville	Morgan.
Johnson, P. L	Prairie Creek	Vigo.
Kielsmier, O. A	Hika, Wis	
Kinger, Calvin, P	Plymouth	Marshall.
Knox, J. M	Lebanon	Boone.
Lamont, Chas.	Mooresville	Morgan.
Lamont, Mrs. Chas	Mooresville	Morgan.
Lawrence, L. V	Plymouth	Marshall.
Lefever & Discher	220 Water St, Chicago, Ill.	
Loges, Ernest	Teegarden	Marshall.
Martin, E. L	New Carlisle	St. Joseph.
Michiner, E. P	Chicago, Ill	
Moyer, M	Walkerton	St Joseph.
Nafis, Louis F	Chicago, Ill.	
Newby, H	Spiceland	Henry.
Quicksell, H. M	Ft. Wayne	Allen.
Redding, Theo	Hobart	Lake.
Rentejoh'er, John	Huntingburg	Dubois.
Ritchey, S. L	Plymouth	Marshall.
Robertson, J. H	Chicago, Ill	
Salisbury, F. G	Orland	Steuben.
Schalliol, Chas. D	Wakarusa	Elkhart.
Schenck, Mrs. M. B	Lebanon	Boone.
Schlosser, Geo	Bremen	Marshall.
Schlosser, Gus	Plymouth	Marshall.
Schlosser, Herbert	Bremen	Marshall.
Schlosser, Jacob	So. Chicago, Ill.	
Schlosser, W. M	Bremen	Marshall.
Schilling, S. B	Mason City, Ia	
Shugart, J. V	Marion	Grant.
Slater, H. N	Lafayette	Tippecanoe.
Stauble, J. H.	Orland	Steuben.
Swindell, Jos.	Plymouth	Marshall.
VanVactor, D. J	Plymouth	Marshall.
VanNorman, H. E	Lafayette	Tippecanoe.
Watson, E. E	Chicago, Ill	
Weidler, R. F.	Garrett	Dekalb.
Wentworth, E. M	Davenport, Ia.	
Wildman, C.	Deedsville	Miami.
Wildfong, S.	Lakeville	St. Joseph.
Woodburry, J. C.	Plymouth	Marshall.

Name.	*Town.*	*County.*
Woods, Sam	Lottaville	Lake.
Woolen, G. V	Indianapolis	Marion.
Zook, E. E	Topeka	Lagrange.
Zook, H. M	Tracy	Laporte.

LIFE MEMBERS.

Boyd, Jas. A	Cambridge City	Henry.
Commons, W. S	Centreville	Wayne.
Drischel, G. W	Cambridge City	Henry.
Ellison, T. E	Ft. Wayne	Allen.
Plumb, C. S	Columbus, Ohio.	
Schlosser, Henry	Bremen	Marshall.
Schlosser, Samuel	Plymouth	Marshall.

INDIANA CREAMERIES.

The following list is based on information at hand since July, 1904. Request for information was sent to each creamery in the State so far as addresses were at hand. Most of them responded. Frequent requests for names and addresses of creameries and cheese factories in the State are received by the Secretary, and it is hoped that those interested will kindly inform him of errors and omissions in this list as well as of the establishment or abandonment of any establishments.

Postoffice.	*County.*	*Manager or Secretary.*	*Butter or Cheese Maker.*
*Amboy	Miami	G. M. Yoars	Frank Arnold.
Angola	Steuben		
Arcadia	Hamilton	Henry Waltz	Henry Waltz.
Attica	Fountain		
Avilla	Noble	J. M Haines	Frank Emerick.
Beecher, Ill		J. W. Dowd	C. B. Eskilson.
Bloomingport	Randolph	Mrs. D W. Knight	A. Knight.
Blountsville	Henry	Cran Hodson	Jas. Ridding.
Bremen	Marshall	Henry Schlosser	C. E. Holdermann.
Brunswick	Lake	H. Asche	W. Mathews.
Butler	Dekalb		
*Cambridge City	Wayne	Geo. W. Drischel	Geo. Usher.
Carlisle	Sullivan	Jas. Howard	C. W. Lisman.
Centerville	Wayne	A. L. Lockridge	J. W. Rohe.
Chrisney	Spencer	E. Maier	Chas. Atkinson.
Creamburg	Lake	W. Schleicher	F. Hilkin.
Creston	Lake	Jos. Berg	
Cumberland	Marion	H. E. Stager	Chas. Jenkins.
Churubusco	Whitley	Leco Isay	C. E. Renberger.
Dale	Spencer		
Deedsville	Miami	S. F. Robins	C. Wildman.

Postoffice.	*County.*	*Manager or Secretary.*	*Butter or Cheese Maker.*
Dyer	Lake	F. Kalvelage	J. H. Breuscher.
Economy	Wayne	W. R. Williams	Levi Staam.
Freelandville	Knox	F. H. Krueger	Aug. H. Loehr.
Fremont	Steuben	J. H. Strak	E. Carpenter
Farmersburg	Sullivan	W. S. Baldridge	H. C Bennett.
Fountain City	Wayne	A. Lockridge	Peter Cutler.
Hagerstown	Wayne	Lee Reynolds	O. C Working.
Hamilton	Steuben	W. Nets	W. Netz.
Hanna	Laporte	J. H. Jorden	Frank Lenick.
Hebron	Porter	B. F. Nichols	B. F. Nichols.
Huntertown	Allen		
Jasper	Dubois	L. J. Purdon	
Kewanna	Fulton	Clifford & Penrod	J. T. Penrod.
*Kingsbury	Laporte	H. H. Lurg	J. A. Ensign.
Lafayette	Tippecanoe	Purdue Univ. Creamery	H. N. Slater.
Lewisville	Henry	J. S. Bartlett	O. J. Richardson.
Liberty	Union	L. C. Burnside	J. W. Burgogne.
Lima	Lagrange	E. L. Craig	Henry Gaskill.
Logansport	Cass	C. W. Arnold	H. Myers.
Modoc.	Randolph	C. B. Gillian	Lawrence Grubbs.
Mooresville	Morgan	Lewis Bros	W. E. Lewis.
Muncie	Delaware	Geo. W. Brooks	B. L. Hollister.
Nappanee	Elkhart	Geo. Freese's Sons	C. Tobias.
New Castle	Henry		
New Carlisle	St. Joseph	A. H. Compton	Earl Martin.
New Lisbon	Henry		
*New Washington	Clark	G. P. Swan	
North Manchester	Wabash	Silas Holloway	A. V. Holloway.
Orland	Steuben	F. G. Salisbury	John Stauble.
Osgood	Ripley	G. Herman	G. Herman
Plymouth	Marshall	Sam Schlosser	J. M. Holderman.
Portland	Jay		
Prairie Creek	Vigo		Perry L. Johnson.
Rochester	Fulton	F. E. Bryant	
Rossville	Clinton	J. Truesdale	
Schererville	Lake		
Spiceland	Henry	L. O. Draper	Herbert Newby.
Springport	Henry	W. A. Wollen	W. A. Wollen.
St. John	Lake		
Straughn	Henry	E. E. Henly	H. W. McGrath.
Sullivan	Sullivan	W. S. Hastings.	
Topeka	Lagrange	H. M. Zook	E. E. Zook.
Trafalgar	Johnson	Frank Hellerick	Frank Hellerick.
Union Mills	Laporte	D. H. Wakeman	L. B. Wakeman.
Valparaiso	Porter	S. E. Rigg	Chas. Morrow.
Vincennes	Knox	G. B. Riley	G. B. Riley.
Webster	Wayne	A. L Lockridge	L. B. Harris.
Westfield	Hamilton	W. S. Hill	W. B Hill.
Westville	Laporte	Herman Kressel	Herman Kressel.
Williamsburg	Wayne	A L. Lackridge	
Winchester	Randolph	Tyre Puckett	W. A. Cropper.
Wolcottville	Lagrange	H L. Taylor	
Zionsville	Boone	W. M. Sheetz	

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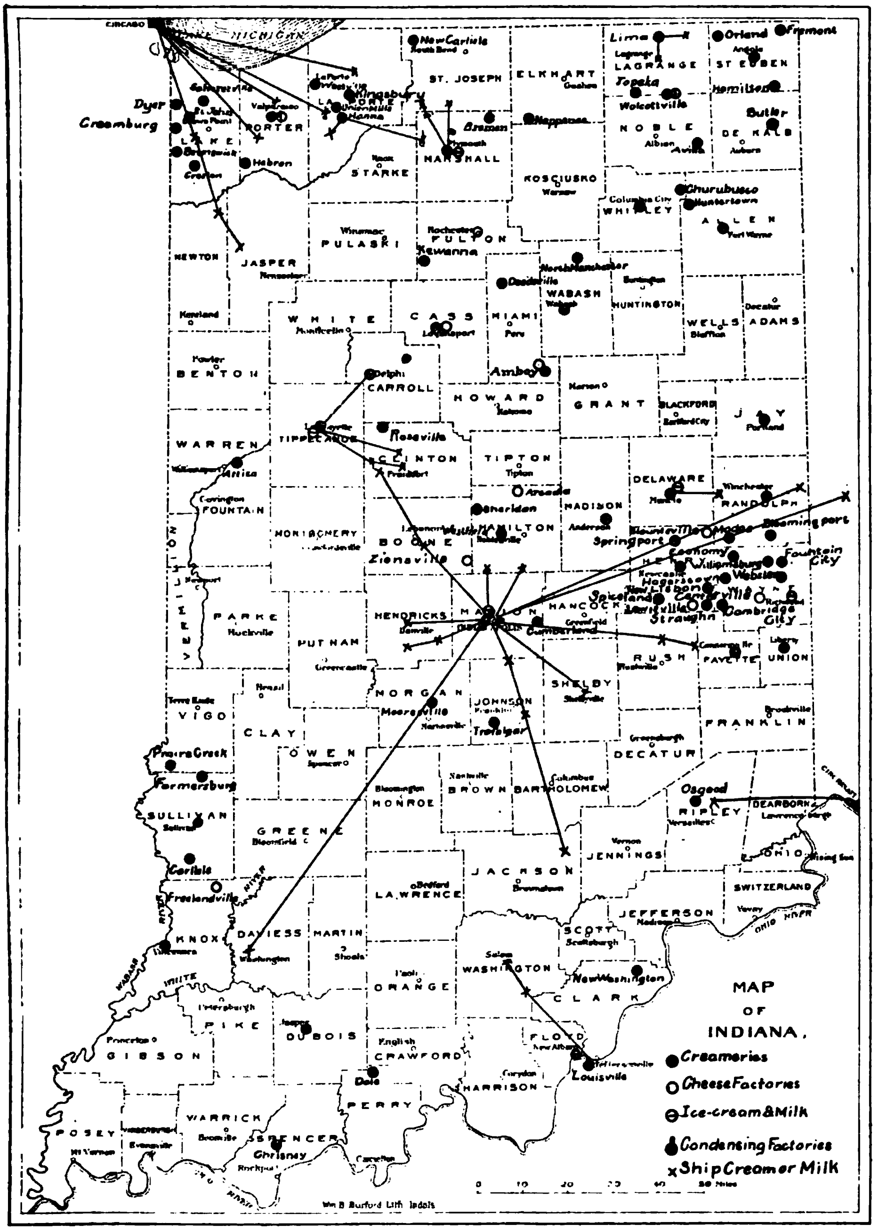
*Cheese factory.

ICE CREAM AND MILK DEALERS.

Postoffice.	*County.*	*Firm Name.*	*President or Manager.*
Anderson	Madison	Indiana Dairy Supply Co.	W. L. Collier.
		Larmore Bros	
Columbia City	Whitley	Columbia City Cr'y Co.	F. L. Myers.
Connersville	Fayette	Connersville Ice Plant	
Delphi	Carroll	Delphi Ice Cream Co.	D. N. Dane
Ft. Wayne	Allen	Mondamin Meadows C. Co.	T. E. Ellison.
Indianapolis	Marion	Amer. Condensed Milk Co.	
		W. H. Ballard	
		R. L. Furnace	
		Indianapolis Cr'y Co.	D. W. Jackson.
		Jessup & Antrim	
		Polk Sanitary Milk Co.	Sam O. Dungan.
		Putnam Creamery Co.	
Lafayette	Tippecanoe	Chamberlain & Son	John Chamberlain.
		Kienley & Co.	Geo. Kienley.
Muncie	Delaware	Brooks Creamery Co.	Geo. W. Brooks.
		Fowler & Co.	
		Hinckley Ice Cream Fac.	C. E. Hinkley.
New Albany	Floyd	Wm. J. & Geo. Goodbut.	
Sheridan	Hamilton	Ind. Condensed Milk Co.	
Valparaiso	Porter	J. Foster	
Wabash	Wabash	A. S. Gilman	
Wolcottville	Lagrange	Amos Gripe	
		H. L. Taylor	
Richmond	Wayne	Richmond Cream Co.	C. C. & H. J. Commons.



MAP OF INDIANA.

ARTICLES OF ASSOCIATION OF THE INDIANA STATE DAIRY ASSOCIATION.

(As amended December 7, 1899.)

Article 1. The name of this Association shall be "The Indiana State Dairy Association."

Art. 2. The officers of this Association shall consist of a President, Vice-President and Secretary-Treasurer, and an Executive Committee, consisting of the President, Vice-President, Secretary-Treasurer and two others elected by the Association. The Secretary is authorized, whenever necessary, to employ an assistant secretary of his own appointment, to assist at the annual meeting, who shall be paid for his services as the Executive Committee may decide. A committee of two, to audit the Secretary-Treasurer's accounts, shall be appointed by the President at each annual meeting.

Art. 3. The officers shall be elected to serve one year, or until their successors have been elected.

Art. 4. The regular annual meetings shall occur at such time and place as may be designated by the Executive Committee, or by majority vote of the Association at the annual meeting.

Art. 5. Any person can become a member of this Association for one year by the payment of a fee of one dollar. Upon the payment of ten dollars, a person may become a life member. Honorary members not to exceed five may be elected, but said election is not to hold for over two years, excepting by re-election.

Art. 6. The President shall have power to call a special meeting at such time as in his judgment the interests of the Association demand.

Art. 7. The Executive Committee shall have power to transact all unfinished business.

Art. 8. The Treasurer shall be the custodian of all the funds belonging to the Association, and pay out the same on the order of the President. The Treasurer shall also furnish sufficient bond, as determined by the Executive Committee, to guarantee all moneys owned by the Association, handled by him, the said bond to be deposited in such national bank as may be designated by the Executive Committee.

Art. 9. The officers of this Association shall perform such duties as usually devolve upon officers of similar organizations.

Art. 10. The President and Secretary shall each be allowed out of the general fund an amount equivalent to their actual expenses while attending Association meetings. When the Association receives State aid the Treasurer is authorized to meet the expenses of the Executive Committee in all cases of called meetings where executive business is transacted.

Art. 11. These articles may be amended by a majority vote of the members of the Association present.

FOURTEENTH ANNUAL CONVENTION OF THE INDIANA STATE DAIRY ASSOCIATION, PLYMOUTH, INDIANA.

WEDNESDAY MORNING.

December 10, 1903, 10 o'clock, a. m.

The Fourteenth Annual Session of the Indiana State Dairy Association was called to order by President Samuel Schlosser, of Plymouth.

Invocation by Rev. C. A. Brooke.

The Association was welcomed to Plymouth by the Mayor, D. C. Knott, as follows:

Mayor Knott: The citizens of Plymouth and Marshall County feel grateful this morning to know that the Fourteenth Annual Dairy Convention of the State of Indiana is in session in our city. I deem it an honor, as well as a pleasure, this morning to extend to you a most hearty welcome to our city.

Your members represent an industry the magnitude of which is but little understood by the average citizen, and more especially by those of us who have not made a study of it.

It is an industry that has attained a magnitude second to but one in this country. It is an industry that represents in the State of Indiana its millions, and in the United States, or in this country, way up into the billions of dollars. There is more capital represented (as I get it from statistics) in the dairy business five times over than in all the banks in the United States. We know but little of it here in this vicinity. It is practically a new industry with us. Yours is an industry in which indolence and ignorance cut but little figure. It is an industry that requires intelligence, energy and acumen. It requires not only the study of the anatomy or physiology of a particular cow, but it involves the chemical study of the different kinds of feed, and their relative values as food products. The intelligent dairyman studies to secure the greatest possible results, with the least possible expense in securing it. It may seem a little mercenary on your part to try to get all you can out of the poor cow, and give but little; but that is science, and that is what you are after here. I believe this Association will prove of great benefit, not only to ourselves of this community, but to all our visitors. It is not my purpose to discuss the relative values of cows, or of foods for cows, whether these cows be Holsteins, or Jerseys, or "Brown Bessies." But I believe there are men here ready to tell us all about it, and I want (for myself) to be here and hear and learn as much as possible about it. I read an article in the paper a few weeks ago, in which a dairyman of considerable prominence stated that all Holsteins ought to be killed; that another said all men over fifty years old ought to be killed. You can discuss about the Holsteins. On the second proposition I will have something to say. [Laughter.] You can see by the color of my hair where I am at. Still we think we are worth a little after we are fifty years old.

We feel a just pride in the honor you have conferred upon our city in selecting this place as the place to hold this convention. I especially want to say we are proud of the efforts, the energy and the push of the Schlosser Brothers for their energy in bringing this meeting here. And further than that, we want to say to you we feel proud of the distinguished honor you have conferred upon one of our fellow citizens in electing him President of the State Dairy Association, Mr. Samuel Schlosser. [Applause.]

Now, then, as I have said before, I am not here to discuss the dairy proposition. We welcome you again to our city. Our professional men, our merchants and our farmers will, I am sure, greet you with a hearty welcome. We have no magnificent buildings to show you, but we can show you a beautiful and clean city. Again, gentlemen, I welcome you. [Applause.]

G. W. Drischel being absent, the response to the Mayor's greeting was made by D. B. Johnson, of Mooresville, as follows:

Mr. Johnson: I feel unable to take Mr. Drischel's place, yet I feel honored this morning that I am permitted to represent this body of dairymen of the great State of Indiana. We have assembled here for the purpose of discussing better modes and ways by which we can make this convention better. I thank the Mayor, on behalf of this Association, for his warm words of welcome, and I want to say that while we represent one of the best interests in the State, there are others, possibly, equally as important. While these other industries, such as the beef and pork, and sheep and wool industries, and other industries are important, yet we believe the time is coming when the dairy interests of Indiana will be paramount to any of them. While we are here these two days, we expect not only to receive something from you, but, possibly, leave something that will be of benefit to you. It was in my province when a boy to be able to eat bread with butter on it, yet I remember time and again, when it slipped from my hand, the buttered side always went down. But we hope, when we leave here, to leave the buttered side of this bread up. I thank you. [Applause.]

THE DAIRY BARN.

M. J. RIPPEY, SYRACUSE.

A modern dairy barn need not be an expensive structure, but should be well lighted and ventilated, so as to be perfectly healthy for the cow. It is said man can live without food ten days, but can't do without pure air five minutes.

First, location. I prefer a basement with half bank, which should stand north and south if possible, as it gives more sunlight. It should be not less than 38 feet wide, but any desired length with two rows of cow stalls with gutters and driveways between, so as to drive in and clean out and take to field and spread at once. This leaves feed alleys along the wall and cows face the light. There should be a window every 8 feet; size, 4 lights; 9x16 inches. The basement walls can be built of 2x6, set 22 inches on center, the siding on outside and lined on inside, making a dead air space. Between each window an opening in the siding just on top of foundation wall, and on inside an opening at the ceiling. This leaves a cold-air duct 6x16 inches every 8 feet to admit pure air without draught. Foul-air flue starts 1 foot above the stable floor, going through the wall and up outside, higher than barn. There should be one at each end of barn. Then you have perfect ventilation without any draught, which is essential for comfort and health of the cows as well as cleanliness and purity of the dairy product.

Cement floors throughout, with gutters made of cement, new process lime and sand, so they will not absorb anything. They should have no drain, but absorb liquid with litter and refuse of shredded corn stover. The gutter should be sprinkled with land plaster every day.

There are various stalls, stanchions and ties. We have the Newton and Van Norman. We prefer the Van Norman, as it is cheaper and better. You can get drawings and specifications in Purdue Experiment Station thirteenth annual report. The basement should be 9 feet high. The superstructure above basement should be large and roomy to hold all kinds of roughage that does not go into the silo. I prefer Scheidler's balloon frame and self-supporting roof.

No modern dairy or stock barn is complete without one or more silos to carry the herd through the winter and droughts in summer. I prefer a cemented silo.

First make trench and foundation circular with form and fill with cobble stone and cement; then set up 2x4's, 12 inches on center; line inside with ⅝ or ½ by 6 inch stuff, then strip lath with strips ⅜ or ½ by 1½ beveled edge to make clincher for cement. Take one-third new process lime and two-thirds Portland cement; mix well. Take one part of the mixture and two of good screened sand. The lime makes it air tight and the mortar more sticky, and will not roll under trowel like sand and cement. I should hoop the outside with ½x6 inch stuff and double them. breaking joints, or screen and plaster same as inside. This I prefer to a solid concrete. It is cheaper and will last as long. Should be careful and get the doors right and tight. There is so much silage lost with badly constructed doors. In Purdue Bulletin No. 91 on silo, Prof. Van Norman gives drawings and specifications of a very satisfactory silo door.

DISCUSSION.

L. S. Hardin: I notice that Mr. Rippey says the floors are to be made of cement throughout. I would like to have Mr. Goodrich tell us what is his experience with cows lying on the cement. There is a good deal of complaint about that. Should there not be boards under them?

C. P. Goodrich of Wisconsin: I never have had a cement floor. They have many cement floors in the State of Wisconsin. They put in cement floors in the barn at the Station; but they don't like to have the cows lie down on the cement. They say it is cold there, and their udders often get inflamed, and they are more likely to get the garget; so they have a board covering for the cement, so they can take it up and wash out the barn. One of my sons had a cement floor in his barn. He has the kind of stall which Governor Hoard has called a "model stall," where there are 3x4 inch scantling at the back of it. The cows lie inside of it, and that holds the bedding, so that the cow is protected from lying on the cement. There was a time when I would have put in a cement floor, and I got nearly ready for it. I would not do it now, unless I planned to have it covered with boards, or such a stall that the bedding would keep the cow from lying on the cement.

F. S. Strong: What distance would you have the stall extend from the manger?

Mr. Rippey: That depends on the length of the cow.

Mr. Strong: Well, say an ordinary Jersey cow.

Mr. Rippey: That depends on what stall you have. Take a Newton and it can be six inches longer than a Van Norman. I think we have them from four to six feet long. I wish to say that we do not allow our cows to lie on the cement floor. We keep them well bedded with straw, or shredded corn stover. I wouldn't have them lie on the bare cement, myself.

President Schlosser: Does it never get cold enough in your barn to freeze?

Mr. Rippey: It never does; it has never frozen in there.

D. B. Johnson: One point Mr. Goodrich has brought out, and that is with reference to garget affecting those cows lying on the cement floor. I have been thinking of building a cement floor, but that one thought has deterred me from doing so. I believe the point is well taken that the cow should not be permitted to lie on a cold floor, and I believe that is a point we should look at.

Frank Taylor: How wide do you have your stalls?

Mr. Rippey: The Newton tie is 32 inches and the Van Norman three feet. I think either of these is large enough for a fair-sized Jersey cow, or almost any dairy cow.

Mr. Johnson: How far back from the manger does the stall reach—the partition, if you have any partition at all?

Mr. Rippey: We just have a plank, one about six feet long, and that reaches clear back. Right at the gutter it is only just level with the floor, and it slopes to the top of the manger.

Mr. Goodrich: Did I understand you to say you have thirty-two inches of room for the cow?

Mr. Rippey: With the Newton tie, I think it measures about thirty-five inches.

E. S. Fries: What is your plan to furnish a manger for shredded fodder or hay?

Mr. Rippey: With the Newton tie there are two 6-inch boards next to the cow. We have a partition in there, and we go along the feed-alley and throw the feed in, and it keeps rolling down to the cow all the time. They are about ten inches wide at the bottom.

Mr. Fries: Have you any trouble with the cows working the feed back?

Mr. Rippey: They can not.

Mr. Fries: Have you uprights?

Mr. Rippey: I use a cow chain. In the Van Norman cow stall there is a piece on each side where the manger goes. There is a loop of iron and board which slips up and down. This accomodates itself to the different positions the cow desires to assume. In the Newton tie there is a bow which comes out here [illustrating] and it raises up and pushes the cow back, and she can not come forward enough to root her feed out, and when she lies down the bow drops down. She can not step forward enough to root the feed out, and it keeps coming down to her all the time.

Mr. Van Norman: I was at Mr. Rippey's barn. The front of the manger runs up, as I remember, about 2½ feet high at the front. Then the back of the manger is about a foot high. Then on top of this [illustrating] are two boards making a V-shape opening for the cow to reach in the manger. The front of the manger is the side next to the feeding alley, and the back is the side next to the cow. The side next to the cow is "V" shaped, with the bottom of the "V" one foot from the floor. The side next to the feeding alley runs up about 2½ feet high.

Mr. Schlosser: Did you ever use any stanchions for cow ties?

Mr. Rippey: We never do.

President Schlosser: I would like to ask Mr. Goodrich if he has ever used stanchions to tie cows with?

Mr. Goodrich: I am sorry that question was asked me. I have always preached against stanchions, and yet I have them. You know we are engaged in the dairy business to a large extent in Wisconsin, and we have a great many dairy cows. You can not find a man that is of much consequence that advocates the rigid stanchion, but when you go through the dairy districts you will find nine out of ten using them. They will say they don't think they are just the best thing, but they say, "They are safe." They are the quickest handled of anything we have ever used; and it doesn't hurt the cows very much, because they have been brought up to it ever since they were calves, and do not know enough to resent it by withholding their milk or anything of that kind. But I always hate to have anybody ask me if I ever use stanchions. [Laughter.]

Henry Schlosser: There are two kinds of stanchions; what do you think of the different kinds?

Mr. Goodrich: The swing stanchion is not objectionable, for when the cow lies down she can put her head on the side, and if she feels like licking herself she can do it. If the rigid stanchion is used she has to lie in one position all the time. However, after a few years they get used to it. One time I was asked if I had cows in stanchions. I said, "Yes, I have got to own up to it."

Then I was asked, "How would you like to have your neck between two rigid poles and have it kept there all the time?" I said, "If my mother had placed me that way when I was a baby, and I had kept it up, I would like it just as well as you would like to have a rope around your neck. [Laughter.]

Mr. Calvin: When I went into the dairy business I had a building 30x36, and twelve feet high, which was built for a hog house. I am using it today for a cow barn. I want to say something about the construction of a manger and feed-way that is handy. I made a feed-way, we will say four feet wide. I have two rows of cows, one on each side of this feed-way, facing one another. Then I took a 2x4 and I made a V-shaped place for them to eat through. I have a plank which comes out here probably 18 inches. I tie with a chain. By measuring the height of the cow from the floor, to the top of her withers there, you can tell how slanting to make your 2x4. They never root their feed out of the manger; they can eat very easily. They can back out and lie down with comfort. I would not build a barn that way, if I was building a cow barn, but I had to use something until I was able to build, and this gives me good satisfaction.

Henry Schlosser: I got my first idea of the stanchions up in the State of Wisconsin at the Wisconsin Experiment Station. I do not believe the rigid stanchion is a proper one. I believe if I were building another barn I would put in a swing stanchion. They are more convenient than any other tie. We can arrange the cows close together, and we can arrange our feed troughs in such a way that the cow has no way of wasting any of the food at all.

Mr. Van Norman: You did not tell us, Mr. Goodrich, about the chain stanchion. You have seen that?

Mr. Goodrich: I have seen it but I have never had any experience with it.

Mr. Van Norman: I want to call attention to what is known as the chain stanchion. It has a frame with six inches of chain at the top and bottom. The cow can turn her head around with it, and rest her nose on her knee. I think it is better than the swinging or swivel stanchion.

Henry Schlosser: I believe there are more bank barns in this part of the State than in any other. They are very inconvenient. The lower part or basement is cut up into four or five different stables. If I owned one of those barns I would knock the inside out of them tomorrow morning, and rearrange them. It would save time in taking care of the stock. Most basements to bank barns are too dark. We find that in this part of the country they are so dark a man can hardly do his work at this season of the year without a lantern. I think there should be two rows of cattle facing each other, and get the stock in a long string the full length of the barn.

Frank Taylor: Do you have the ends of the barn to the bank, or the sides of the barn to the bank?

Henry Schlosser: The side of the barn.

Mr. Reamer: Has any one used any of these dumps to take the offal back and forth out of the building, and if so, how successfully?

Mr. Rippey: I have seen them work. They seem to work all right. You can shove them along behind the cows and load them, and shove them out, and raise them up as they go out, and dump them into a wagon; and I think they are quite convenient. But we did not adopt that plan. We just drive in, as I have said, right in between the cows, and clean out.

Mr. Reamer: You deliver right to the field?

Mr. Rippey: Yes.

Mr. Reamer: Do you use a manure spreader, or not?

Mr. Rippey: No, sir, we have not got to that yet. I have often thought we would.

Mr. Reamer: We tried one of those this year, and it was very successful.

Mr. Rippey: I think so. The agent at our place sold two carloads at our town last summer. Those were the first ever sold at our place. Some speak very highly of them.

George Schlosser: How successful would a manure spreader be where the snow is a foot deep or maybe six inches?

Mr. Reamer: There is nothing but what has its drawbacks. But I want to tell you, you can get your manure on so many more acres. I know our manure this year went as far again as before. We have the results to show for it.

Mr. Goodrich, of Wisconsin: The manure spreader is all right where there is neither deep mud nor snow. It is a great convenience. I never had everything I wanted in my barn. I don't know as anybody ever did.

President Schlosser: Marshall County is just beginning to get interested in the silos that have been in operation, which were built last season. Many are contemplating the building of silos the coming season. I would like to ask Mr. Rippey the best place to locate silos to have them convenient to the feed lot and the barn?

Mr. Rippey: That depends on how you stand your cows. If I were building a barn and would stand the cows facing one another, with a feeding alley between, I would put the silo at the end of the barn, and wheel your cars to the silo, and fill them up, and wheel them down here and feed the ensilage to this side and that. But if you are going to have your cows face the wall, then you will have to place your silo at the side of the barn, because if you put it at the end of the barn it will be in the road. It is quite an important thing to think about—where to locate the silo to make it handy to get at to feed.

Mr. Van Norman: How much light should there be in a cow barn?

Mr. Rippey: As much as you can possibly get.

Mr. Van Norman: Is there any danger of getting too much?

Mr. Rippey: No, you won't get too much. The more light there is the dryer is the air in the barn, and the better. There are too many barns built with a bank, and this prevents light coming in and makes your cow barns moist and damp.

President Schlosser: What temperature do you like to have your barn in the winter time for your cows?

Mr. Rippey: We have never had a thermometer in our barn, and I don't know hardly what it should be. I have been in dairy barns where they had two or three thermometers.

Mr. Reamer: That is a hard thing to regulate.

Mr. Calvin: Do you have water in the barn?

Mr. Rippey: The water is in the tank on the outside. I think it is better to have the cows go out and get a good drink of warm water. I believe in having water heated up to 100. Then the cows will drink and stretch and go back to the stable feeling good. Don't leave them out until they get chilled. There might be some objections to heating up to 100, but I think if a person tries it he will find no objection to it in cold weather. Lots of people think when the ice is out of the tank that is all that is necessary.

Mr. Van Norman: What is the advantage of having the water warmer than a summer temperature of 60 or 70?

Mr. Rippey: Sixty or 70 in the winter would chill them. The water ought to be as warm as the cow in the winter time. She will drink more.

President Schlosser: In Marshall County and in Northern Indiana there are a great many bank barns, not conveniently arranged and not lighted and ventilated properly, for dairy cattle especially. I hope the discussion here this morning has been of some benefit to the people here; and that they can rearrange some of these barns and make good up-to-date dairy or stock barns out of them. The cow, to produce, must be comfortable. It will be impossible to get her to produce what she ought to, without getting her perfectly comfortable.

THE VALUE AND USE OF ONE OF THE BYPRODUCTS OF THE DAIRY.

D. B. JOHNSON, MOORESVILLE.

There are one or two things to be taken into consideration when we talk about the dairy interests of the country. In the first place, there is money in the dairy business. I heard one man say in Indiana this winter, a man who has recently gone into the dairy business, that he had quit the beef business to go into the dairy business. He said that before he went into the dairy business he never had a dollar in his pocket which he could rattle around, but since he went into the dairy business he always had a dollar in his pocket. It is a business that brings in the dollars more regularly than any other business on the farm. One of the reasons I am in the dairy business and have been for fifteen years, is because of the fact I can build up my farm, and make my farm better every year, by having been in the dairy business. If it were not for the fact that I can take all the produce I grow on my farm and feed it to the dairy cow, and get a large return, and build up the farm in addition, I doubt whether I would be in the dairy business very long. There isn't as much fun about the dairy business as some other lines of activity. It takes a great deal of work. My object is to get all out of it there is in it. This morning I want to touch upon the subject of the byproducts of the dairy. One of them has been neglected by a great many farmers. A great many farmers in Indiana have not considered the real value of some of the byproducts. We talk of the calf as being one of the byproducts. I believe it has been said, coming from the Illinois Experiment Station, that the calf would probably pay for the feed during the time the cow is dry; and possibly the skim milk will pay what it costs to take care of the cow, and that probably should be considered as part of the profit.

I want to speak a little bit about the value of our manure. I do not expect to go into an elaborate discussion of this subject. It is of much value as plant food, and we should know how best to use it. It is a fact that many farmers of Indiana are taking off from their land more than they are putting back. As soon as these programs came out, and I saw my name on them to discuss this subject, I immediately commenced looking up some statistics, so that I might present to you some facts concerning this subject. I turned to the experiments carried on by the Cornell Station of New York—a feeding experiment—to find out how much was digested and how much could be returned to the farm as plant food; and those figures I want to present you this morning as the foundation for my remarks. I want to say, however, that whenever we talk about barnyard manure, we all understand there are three elements contained therein —phosphoric acid, potash and nitrogen. The commercial fertilizer takes account of these elements. A great many dairymen in this country are buying commercial fertilizers, and throwing away their manures. During this experiment it was found that with a variety of concentrated foods fed through these animals, they had not taken up to exceed one-fourth the value of that material as a plant food. It was worth three-fourths as much as before as plant food, if returned to the farm. I believe the dairy cow takes out more than any other class of animals, and that experiments have demonstrated this to be a fact. She must use the nitrogen in the process of making milk. I shall only consider the product of the cow. That experiment showed that the manure from one fairly well-fed cow during 12 months, counting nitrogen at 15 cents a pound (which is as low as it can be bought in a commercial fertilizer in this country) and possibly 5 cents a pound for phosphoric acid, and 5 cents a pound for potash (I believe, however, the phosphoric acid in this case was counted at 7 cents a pound) the product of that cow, so far as the value of the manure was concerned as plant food, was $32.25 from one cow. Your secretary said to me this fall at Lafayette that, taking the number of cows in this State and then taking the product of those cows and dividing it up, he found the cash received from the product of each cow as a dairy product amounted to less than $30. So we have got a greater profit in the manure pile than that. I will figure this up again, in order to impress upon you the value of this byproduct. In analyzing that product we found that it contained (whatever it was—12 or 15 tons probably) 170 pounds of nitrogen, 26 pounds of phosphoric acid, and 107 pounds of potash. I turned to another lot of statistics and I found that the phosphoric acid, potash and nitrogen contained in the manure from that one cow would grow one ton of corn (counting 33 bushels as a ton). That is a little over the average for the entire State of Indiana. I could grow 33 bushels of wheat with that same manure, using the phosphoric acid, the nitrogen and the potash. I could also grow one ton of clover hay that contains 41 pounds of nitrogen, 8 of phosphoric acid, and 8 of potash. I could also grow 29 bushels of oats, and 75 bushels of Irish potatoes, and yet would not have to go outside and draw upon any other supply. These were astonishing facts to me. I have taken these analyses from Prof. Henry's Feeds and Feeding. The figures are not mine, but I think they are true. Now then, if it is a fact we have as valuable a byproduct on our farms as that, and hundreds of farmers simply throwing those things away, or else imagining they are doing good work putting them on the ground in such large quantities, they loose a large per cent. of their value, especially that of the nitrogen. A gentleman has spoken about the trouble in using a manure spreader when there is mud or snow. I would wait until the ground is frozen or in right condition and then use the spreader. The average byproduct of one cow would represent considerable, especially if we undertake to buy the material in the form of a commercial fertilizer. The average dairyman in Indiana today is considering how he can get protein food to make good milk. We are discussing the matter how to grow the protein on the farm. We are paying $18 for wheat bran today, which contains only about 12 per cent. of the digestible protein matter. Gluten food contains 25 per cent. of digestible protein and costs $25 a ton. If that can be grown on the farm in the form of clover hay and things of that kind it will be better, and at the same time you are benefiting your farm. We should know the real value of this byproduct and how to best use it, that we may save every ounce of plant food that goes through our stables, and so apply it to our farms as to get every ounce of it into some plant to grow another crop, to make more manure; and that builds up the farm.

DISCUSSION.

Mr. Taylor: Do you use a manure spreader?

Mr. Johnson: Yes.

Mr. Taylor: Can you use it in the winter?

Mr. Johnson: We have never found any winter yet but we could use a manure spreader. We have been using one for six years. We never haul manure out into the fields when it is muddy. We wait until the ground is in the right condition. Sometimes we wait as long as two weeks to find a proper time to haul the manure. We want it to do the most good that is possible. We put it on our wheat fields to help our clover.

A member: How does the spreader work in freezing weather? If you take the manure right from the stable it is not frozen. Won't it freeze on the spreader and clog it up, and finally stop the working of the spreader?

Mr. Johnson: I never found it so.

Mr. Goodrich, of Wisconsin: Do you keep the manure in the barn?

Mr. Johnson: We keep the manure where it will not freeze.

George Schlosser: What is the nature of your soil?

Mr. Johnson: It is clay soil.

George Schlosser: Isn't it true that for six months in the year in northern Indiana you could not use a spreader?

Mr. Johnson: In northern Indiana I should think the snow would be so deep it would not freeze. The manure pile should be let lay until the proper time comes. Manures are too valuable to throw away in muddy times. It should be put on top of the ground.

George Schlosser: How much do you put to the acre?

Mr. Johnson: According to this estimate the cow manure is worth $2.43. Some farmers put as much as 20 tons on an acre—over $40 worth of plant food on one acre.

George Schlosser: How many horses do you put on the spreader when you top dress for wheat?

Mr. Johnson: Two.

George Schlosser: Give us the name of the spreader.

Mr. Johnson: Kemp No. 3; that is the 70-bushel machine.

George Schlosser: How heavy is your team?

Mr. Johnson: About 1,200-pound horses; 70-bushel machine.

Mr. Reamer: Mine is a sixty-bushel one. We use two horses.

George Schlosser: For top dressing?

Mr. Johnson: Yes; we don't haul when it is muddy. I want always to utilize my manures to the very best advantage. We put the manures on the wheat after a snow. The mulch value having it on top of the soil we consider pretty near of as much importance as the food value. That is why we put all our manures on top of the wheat when there is a snow, and thus get a double value from them.

Mr. Goodrich: One of my sons in western Iowa used to keep 100 head of cattle, and 8 or 10 horses. He had a manure spreader. He spread the manure on his grass land. There is where he got the most benefit from it. He could go to his meadow of clover or timothy land and spread it so finely and evenly it made no trouble at all when he came to make the hay. He got a great deal bigger growth of grass, and a stronger sod, and when he came to plow it up he got the benefit of the manure twice. Now, to use it on grass land you only need one team of two horses. Of course they have to pull hard when they start the machine, but it keeps growing easier all the time. It spreads it finely. If you would set all the men of this town to spreading the manure by hand, they could not spread it so finely and nicely as does the manure spreader. And you can drive right along. You do not have to use nearly so much manure. You can put on from five to ten tons an acre, and you will see a gradual effect from it. At the discussion at Madison some man was advocating the putting on of a great deal, and Prof. Babcock was a little shy about telling how much to put on. I put this question: "If you have 40 acres of land and 100 loads of manure, will you put the 100 loads on 40 acres or put it on 10 acres?" I would put it on 10 acres.

Henry Schlosser: Last March my brother borrowed a manure spreader and used it. Our experience has been that you can take the manure out in better shape and with less labor using a spreader, and we all know the American farmer is looking to do his work as cheap, and with as little labor as possible, and I believe the manure spreader is today what the self-binder was 20 years ago in this part of the country.

J. M. Lee: This manure spreading business seems to be quite a business. I wish to say that northern Indiana has quite a number of different kinds of soils. Sometimes we have two or three kinds of soils in one field. Sometimes a part of one field will be a good heavy soil, and the rest of it a light sandy soil. You start up your spreader to spread it even all over the field, and you may find that a few acres doesn't need it, while the other does. Mr. Johnson speaks of putting $40 worth of manure on one acre. While we have some land in this county that would stand that, there is other land that would not. So we have to spread our manure according to the value of our soil. I have no spreader. I take the manure and I put it on the poorest soil. I spread it the best I can by hand. Now, I have soil on which I can raise three tons of hay to the acre. Off about 24 acres of ground I take 70 loads of hay. I have places on my farm that need a great deal more manure than others, and we have to spread it according to the value of our land.

Mr. Reamer: As to the spreading of the manure, as you drive along, with the American, all you have to do is to put your hand on the lever and change it a little, and spread it thicker and thinner.

Mr. Johnson: Just one thought the gentlemen raised I want to mention with reference to barnyard manure. I am glad he raised the question. I intended to speak of it. Clover takes nitrogen from the air. As I said a while ago we pay for bran $18 a ton, to get the protein. Nitrogen when it comes in the form of ammonia is ready for the plant to use it, and if the plant does not use it, the chances are you will lose it. It simply gets away from you. Why not take that manure, and instead of putting $40 on an acre, put $40 on five or six acres; put it on the growing crop, and simply save every ounce of the plant food available, and put it in the crop?

Mr. Van Norman: What proportion of the fertility is lost if you do not get the liquid manure into the heap?

Mr. Johnson: Sixty-three per cent. is in the liquid.

Mr. Goodrich: Prof. Babcock said the other day, 60 per cent.

REPORT OF SECRETARY-TREASURER.

H. E. VAN NORMAN, LAFAYETTE.

In my dual capacity as an instructor in the University and an officer of this Association I have sought to gather information relative to the status and development of the dairy interests.

I find the development most marked in the northern part of the State, where in the western corner milk is also shipped to Chicago and farther east are located nearly half of all the creameries in the State. In Wayne and Henry counties are many of the rest, with a few scattered over the State at large. The southern half of our State is wonderfully well adapted by climate, soil, water and grass, to dairying. They need the regular money income and the manure which results from the dairy, and they are beginning to realize it. There have been two creameries established down there within the past year. There have been six or seven creameries built in our State within the past two or three years. We are going to have more dairying.

We have Chicago, South Bend, Fort Wayne, Indianapolis, Louisville and Cincinnati—all large centers—calling for more and more milk for ice cream, for retail purposes, and for condensing, to say nothing of a large local market for butter, and shipping facilities unequaled by any western states. There has been a condensing plant established at Centerville within the past two years; there was one already in the State, and I understand the Amboy people have put in a condensing outfit. There is a demand for more milk. Our Association should carry to the people of the State a larger knowledge of the financial possibilities of the dairy business. You can't get something for nothing, but if you are willing to work you can get a larger return for dairy work, well done, than in most other lines of agriculture, especially if you consider the value of the manure, as has just been suggested. We do not know much about dairying, as yet.

Let me call your attention to what some of our neighboring states are doing to further their dairy interests. In response to the requests of the dairy people the Missouri legislature provided funds for a dairy building, equipment and instructor at their agricultural college, and made provision for traveling instructors also.

Illinois keeps one man in the field all the time among the dairymen, testing cows and helping to solve the difficulties which stand in the way.

Wisconsin, Iowa and Minnesota each have from one to six men traveling from one creamery or factory to another. Canada employs as many as twenty such instructors in some provinces.

Indiana should make a start in this direction to the end that fewer unprofitable cows may be kept, that our product may command the top of the market.

Our Association has done good work, to the extent of its resources. Our dairy school is just started. The farmers institutes are a help, but we must do more if we are to attain that which is within our reach as progressive dairymen.

THURSDAY AFTERNOON.

December 10, 1903, 1:30 p. m.

BUILDING UP A DAIRY HERD AND BUSINESS.

MRS. CHARLES LAMONT, MOORESVILLE.

To save us moving in quest of a suitable position, we five years ago went in debt entirely for our farm of 70 acres, as well as for nearly all of the cows, horses and farm implements with which to begin work, and even for feed to carry our stock over the approaching winter. It was rather a large undertaking for us to face a debt of $3,500 for the farm alone with the very small cash capital which we possessed, but we were firmly convinced that we could and would succeed, and strange as it may seem, while lack of knowledge of the dairy business has been our greatest obstacle, we have never really suffered for want of financial aid, perhaps because we have made it our business to discharge all obligations at the time agreed on and so kept our credit good.

We had a retail butter route all ready to step into, otherwise we would scarcely have made the venture. We bought a sufficient number of Jersey cows to supply our trade, one here and one there just wherever we could, but most of them from dairymen who were going out of the business. We put in a cream separator and modern butter making appliances.

There was what seemed an epidemic of abortion in the dairies round us at the time, and our small herd had the disease from the first; several of our cows lost their calves, and of these cows some gave very little milk afterwards, but the greatest trouble was that so many of them failed to breed either for a long time or not at all, and these last we had finally to dispose of and replace with others. We sent away for a remedy much advertised for the cure of abortion, but we relied most on keeping the cows clean and disinfecting the premises with lime and carbolic acid, and after some months the disease died out.

We lost two cows from milk fever the first winter. They were let take on too much fat before calving. These losses were far from being encouraging, but they taught us a lesson in care we have not yet forgotten. We do not now allow a cow to go dry more than eight weeks before calving, if possible, and keep the bowels loose before and at the time by the aid of Epsom salts if necessary; feed sparingly for several days after calving and give warm bran mashes and warm the drinking water, and no matter what kind of weather the cow is kept housed for three or four days after she calves, and now milk fever does not possess the terror for us it once did. The heifer calves are left with the cow not more than three days, and are then given the mother's milk for a week or two, and are afterwards fed warm skim milk until they are as much as six months old. We seldom feed anything in the milk, though at present we are giving a little well-cooked corn meal and sometimes we have used linseed. They soon learn to eat clover hay and grain, and we have had little trouble with scours.

Our cow barn is a very ordinary affair, but by the use of whitewash, cemented gutters behind the cows and daily cleaning we keep it in a fairly sanitary condition, and by using building paper along the inside walls and other aids we manage to keep the cows comfortable during the cold weather. At the end of the first year we built a stave silo just outside the barn and the cows are fed ensilage from November (often before) until they are turned on pasture in May, with clover hay, corn stover and bran to make up the winter ration. All of the feed with the exception of wheat bran is grown on the farm, and no grain is sold off except wheat. We give salt daily and bed with wheat straw. We allow a little bran or corn at milking time all through the summer. When the grass gets short in July we generally feed some clover hay and an added allowance of grain until the second crop of clover is ready to pasture. We also feed some green corn in its season, but here we must confess that too often our cows are let shrink in their milk giving before the green feed is ready, even more than the heat and the flies are excuse for, and it is our intention to put up a smaller silo next summer and fill with corn for summer feeding. In this way we think we will be able to provide for our cows better than any other, as well as materially reduce the summer grain bills. The manure is drawn out and spread on clover sod as often as convenient. We have always kept a registered Jersey sire to head the herd and we save the heifer calves from what we judge as our best cows. Two-thirds of the herd is at present composed of young animals of our own raising, and we now expect to raise all the cows we may require. While more of our cows freshen in the fall and winter months, we have some of them to bring their calves at different seasons, for the reason that it helps to keep the butter good and also to keep up a certain supply the year round. The heifers usually freshen when 20 to 24 months old. The skim milk left after calves are fed, as well as the buttermilk, is fed to the pigs. Of these we try to rear 25 to 35 twice a year and sell when 6 to 7 months old. These are, we find, a profitable combination with the dairy. We have a weigh scale hanging in the barn, also sheet of cardboard and pencil, and the milk of each cow is weighed at every milking and a note made of amount, so we know just how much milk each cow gives in a week or a year and we test the milk occasionally—to find the percentage of butter fat it contains, which enables us to know which are the most profitable cows—by using a corrosive sublimate tablet to each sample. We now collect a sample of each cow's milk for a week, or perhaps less in hot weather, and then test with little trouble. We think we get a more correct test than when taken for only one day. For this method we are indebted to Prof. Van Norman.

The first year's record could not be called a fair test of what our cows had done, but the second year they gave an average of 255 pounds of butter each. Last year they averaged 290 pounds each. They will almost, if not quite, reach the 300-pound mark this year, though there are four heifers included in the herd. We have at present 15 cows and a number in calf, heifers and calves. We have much to accomplish yet before we have either a dairy or a farm we can feel proud of, but as a result of our little herd and its products our debt so long like a black cloud hanging over us is steadily decreasing, our farm is yearly growing more productive, the herd itself is increasing, and we have a ready market for all our butter, and we are, a little at a time, putting in much needed improvements and planning for more extensive ones in the future.

DISCUSSION.

Prof. Van Norman: I do not wish to talk all the time, but I feel a good deal of pride in this last paper. If Mrs. Lamont were not here I might say something that perhaps I should not say in her presence. I remember one of the first years I was down at the State Fair with the University exhibit. Mrs. Lamont stood there nearly all day and watched our students churning and making butter. She asked questions about butter making and things of that kind. The next fall she sent butter to the State Fair, and she sent butter to the State Association for several years. I have watched with satisfaction the improvement in her work, and the study she has been putting into the business. Her paper shows it. I feel that here, questions should be asked. Such persons can answer better than us college professors. I think you will make a mistake if you don't ask all the questions the President gives the time for.

Mr. Johnson: Mrs. Lamont is from my own town, and what she has read she is doing. I have known her ever since she came to Indiana. She is making a success of her business. In our county she is regarded as an authority on butter making.

Mr. Callane: What size and kind of separator do you use for 15 cows?

Mrs. Lamont: A No. 2 DeLaval "Baby" separator.

Mrs. Freese: I would like to ask how much per year your butter averages per cow?

Mrs. Lamont: This year our cows will make 300 pounds each, and there are 4 heifers included in the 15 cows.

Mrs. Freese: What do you get on an average per pound for your butter?

Mrs. Lamont: We get 25 cents six months in the year; the winter six months we get 30.

Mrs. Freese: Do you ship your butter or sell it at retail?

Mrs. Lamont: We sell it at retail; we have a butter route and take it to our customers every week.

George Schlosser: What power do you use to run your separator?

Mrs. Lamont: Hand power. The men folks run the machine. I do the churning, and make the butter. The men do the milking.

Mr. Reamer: How long does it take you to run it through the separator each time?

Mrs. Lamont: I think a little over a half hour. It depends on the quantity of milk. Sometimes we get more milk than at other times. I think a half hour, to perhaps 10 minutes more than that sometimes.

President Schlosser: The No. 2 separator will separator 600 pounds of milk an hour. You can figure up how long it will take.

Mrs. Freese: You have the butter contracted by the year?

Mrs. Lamont: Yes, all of it; and we could supply a great deal more if we had it.

Mr. Doud: I would like to ask what time you do your milking?

Mrs. Lamont: We begin about five o'clock in the morning, and then between four and five in the evening, so we get done in a reasonable time.

Mr. Doud: Do you think it would be any better to divide up the hours and milk at, say 5 in the morning and at 5 in the evening?

Mrs. Lamont: That is about what we do. I think we begin work a little earlier at night.

Mr. Doud: If you did the milking regularly wouldn't it be better?

Mrs. Lamont: Yes.

Hyland Chase: What is your style of churn, and what is your method of churning?

Mrs. Lamont: We have a Davis swing churn. I do not like the swing churn as well as the barrel churn. When the butter is taken out of the churn we place it on the butter worker and sprinkle on it an ounce of salt to the pound.

Mr. Doud: Do you use dry salt?

Mrs. Lamont: Yes; sometimes we use more. Sometimes we use an ounce and a quarter of salt. If it comes in good large grains, in the summer, we use a little less than an ounce of salt. The butter is in grains on the worker, and I take the paddle and move the butter over and over so the salt will get well mixed.

Mr. Doud: We salt our butter in the churn.

Mrs. Lamont: I should think that would be all right if you have a barrel churn. You can not do that with a Davis swing churn.

Mr. Doud: We think it better to wet the salt. I would like to hear the opinions of others.

Mrs. Lamont: The only way I use brine is when the butter does not come to the top very well, and I put a little brine in the churn.

Mrs. Hume: Do you use much water washing your butter?

Mrs. Lamont: I generally wash it twice.

Mr. Doud: Are you particular about the temperature of the water?

Mrs. Lamont: I don't like to use the water very much colder than the butter in winter; but in the summer I like to have it as cold as I can get it.

Mr. Doud: We generally have the water of the same temperature as the cream.

Mrs. Lamont: If we have good cold water I have generally good success in the summer.

Mrs. Carter: Did you ever buy cream to keep up your regular supply?

Mrs. Lamont: I have once or twice. We have nearly always attended the dairy conventions, and we sometimes have to change our days for market, and perhaps go a day or two earlier, and I have bought from the dairymen once or twice; but not as a usual thing.

Mrs. Carter: What price would you be justified in paying for cream for 25 cents a pound butter?

Mrs. Lamont: I never took any notice. I just give them what they ask. They charge me generally what they can get at the creamery.

Mr. Doud: Do you use butter coloring?

Mrs. Lamont: Yes, I think we used it all of last year. Sometimes I missed a week or two in between, but I always use butter coloring.

Mr. Taylor: Do you feed your cows while they are being milked?

Mrs. Lamont: Pretty often; I think so, as a rule.

Peter Sedens: Will you please state what kind of salt you use?

Mrs. Lamont: I nearly always use Genesee. I don't know of any better. I can get it handier at Indianapolis.

Peter Sedens: Is there any danger of working your butter too much and spoiling the quality?

Mrs. Lamont: Why, certainly. Generally when we show our butter we lose a point or two on the grain.

Mrs. Schenck: How do you test the acidity of the cream?

Mrs. Lamont: No way only by my judgment. I use the skim milk starter, and sometimes fresh milk.

L. S. Hardin, of Louisville, Ky.: How often do you ship your butter?

Mrs. Lamont: Once a week.

Mr. Van Norman: How often do you churn?

Mrs. Lamont: We have churned this year as much as four times a week.

Mr. Taylor: Do you use the milk from your entire herd at all times?

Mrs. Lamont: Pretty nearly all of them. Sometimes a stripper that is pretty far advanced in lactation is left out.

President Schlosser: What do you do with a cow when you find she does not give you as much milk as she ought, to be a profitable cow?

Mrs. Lamont: We get rid of her just as fast as ever we can; that is all.

President Schlosser: You do not try to make beef out of her?

Mrs. Lamont: No, sir. We do not sell her to a neighbor as a family cow. Some people have bought our cows for just what they were. We have had one or two self-suckers, and have sold them as such. I do not think the neighbors did that when they sold them again. They sold them because they came from our herd.

Mr. Hall: How do you dispose of calves you do not want to raise?

Mrs. Lamont: We generally get $1 each for them. We like to let them go just as soon as ever we can. Sometimes we get a little more than that for them.

Mr. Fidler: At what temperature do you separate your milk?

Mrs. Lamont: At from 80 to 90. When cold, we put a bucket of hot water in it. We pour it into the milk. I don't know that that is the proper way, but I believe it is better than letting the cold milk go through the separator.

President Schlosser: How much must a cow produce a year to be profitable?

Mrs. Lamont: We have not had to be very particular. We have not been very long in the business, and we wanted to raise all the calves we could. This year each cow has averaged 300 or very nearly—perhaps 298 pounds, if they do as well as they are doing at present, for the remainder of the month. We do not intend to keep a cow that does not produce 250 pounds a year.

Mr. Doud: Have you some cows that give 400 pounds of butter a year?

Mrs. Lamont: We have one cow—she had her calf last January, and she will be fresh this month—and she has given 8,000 pounds of 4½ per cent. milk. We reckon that as at least 350 pounds. She is a young cow.

CREAMERY PATRON INVESTIGATION IN MARSHALL COUNTY.

C. P. GOODRICH, OF WISCONSIN.

Mr. Goodrich: I shall read what I have to say, and I might tell a little story about that—but perhaps I had better not.

Voices: Tell the story. We want to hear the story.

Mr. Goodrich: There was once a Congregational preacher and a Methodist preacher, and each was holding a series of revival meetings. The Methodist preacher was very successful in bringing people into the church, while the Congregational preacher worked just as hard but did not have any success. They met one day, and the Congregationalist said to the Methodist, "Brother, how is it you are having such remarkable success, while I do the best I can, and don't have any success at all?" The Methodist says, "That is all plain enough." He says, "When you get up to preach you have your sermon all written out, and the devil stands behind you and glances over your shoulder, and knows what you are going to say before you say it, and throws his influence beyond you, and hardens the hearts of the people against you; while when I get up to preach I have no manuscript or notes, and the devil himself don't know what I am going to say." [Laughter.]

This is a busy world, and this is the busiest nation of all the world—and the dairymen are the busiest people of this nation; got to be. That is true if we are going to succeed, but we as dairymen do not want to work for nothing. We want to get just as big wages as we can. Everybody is clamoring. We have strikes, and riots and destruction of property, just because men are not getting big enough wages. We want to sell the products of our farms for the highest prices we can get. When we could get $1.50 a bushel for wheat, we wanted $2. That is human nature. I have been investigating the dairy business somewhat here in Marshall County, and I found that some dairymen are making a splendid profit for every dollar's worth of feed they give their cows. Some get $2 and over, and still keep the feed on the farm to keep up the fertility of the farm. They have done first rate; while some others, for every dollar's worth of feed given their cows they have less than a dollar, and they do not have much to leave on the farm. They have been working mighty cheap. It seems to me they should want to know from the other fellow what to do to get big profits.

The object of this is to make a study of the cow; to find out what kind of cow and what kind of treatment would bring the most net money to her owner. This made it necessary that we should confine our investigations to those who sold the product of the cow all in the same market, and to take account of a full year, which, in this case, was the twelve months ending October 31, 1903.

MANNER OF GETTING INFORMATION.

My manner of proceeding was as follows: I would go to a man and find the average number of cows he had kept, the milk of which had been sold to the creamery. All heifers, after they had had calves, were counted as cows, and all cows were counted during the period when they were dry as well as when they were giving milk, for they were eating every day.

I then made particular inquiry as to the kinds and amounts of the different feeds the cows had eaten during the year. I charged the cows of each herd the same prices for the same kinds of feed—that which was raised on the farm at the market price at which it could have been sold, and that which was bought at the average price which it was worth in the market.

PRICES CHARGED THE COW FOR FEEDS.

For ear corn and oats ground I charged $17 per ton; wheat bran, $17; oil meal, $30; ear corn, $12; timothy hay, $10; clover hay, $8; corn stover, $2 a load; silage, $2 a ton, and pasture at the uniform price of $5 per head for the summer.

There was some uncertainty about the amounts each farmer fed, for very few of them had weighed any of the feed; most of them could tell very nearly as to the amount of the grain fed, in "gallons," and having done a good deal in the way of weighing cows' rations I could, I think, approximate quite closely to the amount fed.

I figure that a cow will eat, ordinarily, during the winter feeding season, two tons of hay, or its equivalent of corn fodder, if she is not fed too much grain food. Then she would eat less. As to corn stover, I made some inquiry to enable me to set a price on it, and found that very little had been sold, but in a few instances it had been sold at $2 a load, so I charged that for it. All it really costs is the work in saving it, for there are hundreds of acres left in the fields which are practically wasted. It takes 4 or 5 loads of corn fodder to furnish a cow with the two tons of forage she needs, when it is fed on the ground in the ordinary way, as much of it can not be eaten.

In determining the weight of silage fed, I can come pretty close if I am told the measure. I have found that a bushel basket full, put in loose, weighs, usually about 25 pounds. If it is pressed down with the foot or otherwise it will weigh about 10 pounds more. The winter feeding season was, last year, about 200 days.

FIGURES OBTAINED FROM CREAMERY.

After I had collected all these facts from 50 patrons, I obtained from the secretary of the creamery the amount of milk or cream obtained from each, and the amount of butter fat which it contained, and the amount of money paid for it. The price paid for butter fat averaged higher to some patrons than to others because they furnished a greater proportion at the time when the butter was the highest.

I have used butter fat instead of "butter" for the reason that I believe that is the proper way when determining the ability of the cow. and for the further reason that, in this case, it was not all made into butter but much of it was sold as cream and no one could tell just how much butter it would make. But it was all tested for butter fat and each one was paid in proportion to the amount his milk or cream contained.

CONSTRUCTION OF THE TABLE.

After I had collected all this data, I used the material thus gathered with which to make up the following table, which shows in a condensed form the account with each herd. The cow is given credit here only for the butter fat sold to the creamery, making, in some instances, an addition where a part of the milk was sold to other parties or some butter churned at home. Of course, we know that she produced something more. There was the skim milk, the calf and the manure to help keep up the fertility of the farm. There is also some whole milk used in the family and fed to young calves.

On the other hand we have not charged the cow with the labor of milking and caring for her, or for the interest on the money invested. In my opinion, in most cases, the labor and interest would about balance the credits not given.

COST OF FEED AND INCOME IN FIFTY HERDS BELONGING TO PATRONS OF CREAMERIES IN MARSHALL COUNTY, INDIANA, FOR THE TWELVE MONTHS ENDING OCTOBER 31, 1903.

Patron's Number.	Number of Cows.	KIND OF COWS.	Cost of Feed Per Cow.	Returns for Butter Fat Per Cow.	Pounds of Milk Per Cow.	Pounds of Butter Fat Per Cow.	Average Price of Butter Fat.	Average Price of Milk Per 100 Lbs.	Value of Butter Fat for One Dollar's Worth of Feed.	Net Profit or Loss in Butter Fat Per Cow Over Cost of Feed.
1	4	Grade Jerseys	$22 00	$39 15	4,339	202.4	$0 19.3	$0 90.2	$1 78	$17 15
2	4	Common cows with a little Jersey blood	25 00	27 53	3,510	146.1	18.8	78.4	1 10	2 53
3	6	Two Jerseys, rest common cows, dairy type	26 00	41 78	4,929	215.7	19.4	84.9	1 61	15 78
4	6	Grade Durham, beefy type	25 00	25 89	3,000	130.3	19.9	86.3	1 03	89
5	4	Grade Poll Durham	20 00	23 68	3,158	134.3	17.7	75.0	1 18	3 68
6	6	Grade Shorthorn, a little Holstein blood	26 00	22 68	*	120.5	18.8	....	87	— 3 32
7	4	Three grade Jerseys, one grade Holstein	18 50	18 17	2,443	96.2	18.8	74.4	98	— 33
8	3	Two grade Poll Angus, one grade Holstein	24 00	34 17	4,358	179.7	19.0	77.7	1 42	10 17
9	7	Grades of Jersey, Holstein and Shorthorn	22 00	29 90	3,572	152.8	19.5	83.7	1 36	7 90
10	4½	One grade Jersey, balance grade Shorthorn	20 00	36 42	5,120	187.4	19.4	71.0	1 82	16 42
11	4	Hereford, Poll Angus and Shorthorn grades	33 00	36 06	4,074	187.0	19.3	88.5	1 09	3 06
12	4	Common cows with some Shorthorn	25 00	26 55	3,394	137.7	19.3	78.2	1 06	1 55
13	4	Two Jerseys, two grade Jerseys	31 00	42 16	4,535	213.8	19.6	93.0	1 36	11 16
14	6	Two Jersey and Holstein grades; rest common	19 50	38 27	4,743	203.6	18.8	80.7	1 96	18 77
15	2	Durham and Jersey	25 00	31 10	3,871	154.0	20.2	80.3	1 24	6 10
16	4	Some Jersey, Durham and Galloway blood	25 00	40 20	*	216.0	18.6	....	1 60	15 20
17	17	One Guernsey, some grade Guernsey and most common cows of dairy type	27 00	46 95	5,436	239.3	19.6	86.4	1 74	19 95
18	6	Common stock	30 00	31 06	3,722	156.1	19.9	83.4	1 03	1 06
19	9	Grade Polled Angus	20 50	36 65	*	192.0	19.1	....	1 79	16 15
20	6	Common stock	24 00	23 93	3,126	129.2	19.0	76.6	1 00	— 07

21	8	Grade Holsteins, except two common	22 00	44 41	6,088	220.4	20.1	72.9	2 02	22 41
22	10	Five grade Angus, rest Holsteins and Durham	20 00	18 43	2,201	95.9	19.2	83.8	92	— 1 57
23	7	Common stock, not dairy type	20 00	23 39	3,036	124.7	18.7	77.0	1 17	3 39
24	7	Grade Jerseys	26 00	45 45	*	245.6	18.6	....	1 75	19 45
25	8	Grade Jerseys	29 00	33 98	*	180.6	18.8	....	1 17	4 98
26	4	Grade Durhams	27 00	32 71	*	184.1	17.7	....	1 21	5 71
27	10	Grade Shorthorn	28 00	25 57	*	148.0	17.3	....	91	— 2 43
28	7	Grade Jerseys, scrubby looking	23 00	23 48	*	125.8	18.7	....	1 02	48
29	7	Holstein and Holstein grades	30 00	61 09	*	316.7	19.3	....	2 03	31 09
30	4	Durham and Jersey grades	22 50	26 74	2,747	135.4	19.7	97.3	1 19	4 24
31	15	Grade Shorthorns, beefy type	35 00	22 96	*	119.3	19.2	....	66	—12 04
32	8	Common stock	18 50	16 73	1,962	84.2	19.9	85.3	90	— 1 87
33	5	Grade Jersey, dairy type	20 50	30 83	3,196	160.4	19.2	96.5	1 45	10 33
34	4	Mixed, some Shorthorn, some Jersey	25 50	27 32	2,931	140.0	19.5	93.2	1 07	1 82
35	7	Grade Durham, beefy types, and grade Jersey	31 00	25 81	2,707	132.8	19.4	95.3	83	— 5 19
36	6	Scrubs, with a little Jersey blood	27 00	25 80	*	134.4	19.2	....	96	— 1 20
37	7	Grade Jersey	20 00	30 80	3.654	162.0	19.0	84.3	1 54	10 80
38	3	Grade Durham, a little Holstein and Jersey blood	25 00	39 73	4,962	208.0	19.1	80.1	1 59	14 73
39	3	Grade Shorthorn, dual-purpose type	23 50	28 03	3,820	143.1	19.7	73.4	1 19	4 53
40	4	Shorthorn, Jersey and Holstein grades	30 00	34 79	3,777	177.9	19.6	92.1	1 16	4 79
41	3	Two grade Shorthorns, one Jersey, dairy type	28 00	37 79	4,686	194.3	19.5	81.0	1 35	9 79
42	2	One Jersey, one grade Jersey, dairy type	30 00	46 23	4,378	228.5	20.2	1 05.6	1 54	16 23
43	3	Two grade Durhams, one grade Holstein, dairy type	27 00	49 41	5,861	252.0	19.2	84.3	1 83	22 41
44	3	One Jersey, two common	21 00	29 41	3,249	159.6	18.4	90.5	1 40	8 41
45	5	Grade Durham, one grade Jersey	27 00	25 09	2,641	129.1	19.4	96.0	93	— 1 91
46	3½	Grade Jersey, dairy type, except one	26 00	40 80	3,858	205.0	20.0	1 05.8	1 57	14 80
47	4	Durham and Jersey grades, one scrub	25 00	23 82	2,657	119.9	20.0	89.6	95	— 1 18
48	4	Grade Jersey	22 00	23 33	2,408	117.8	19.8	97.0	1 06	1 33
49	5	Grade Shorthorns	30 00	23 36	3,200	116.8	20.0	73.0	78	— 6 64
50	5	Grade Shorthorns	20 00	29 38	4,136	155.6	19.5	73.3	1 46	9 38

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* Cream from hand separators delivered to creamery instead of milk.

The patrons are here designated by numbers, instead of names. If I should give their names here it might lead, in some cases, to embarrassment that would be disagreeable (for I suppose most of the patrons I interviewed are here), and prevent me from telling some plain facts, which, if told, may do good. Besides this, I promised not to give names.

SOME MAKE PROFIT; SOME DO NOT.

It will be seen by looking over this table, that some made a good profit in butter fat sold over the cost of feed, while others did not get enough for butter fat to pay for feed. It would seem that one man should do about as well as another if he used as much intelligence and practiced as good methods in his business. To try and see if we can not discover the cause or causes of this great difference in results was the object of this investigation, and of my appearing before you today.

I have selected a few numbers which represent some of the extremes, on which I will give some of the notes I took while making the census, and some comments thereon.

DIFFERENCE IN TYPE.

No. 3. Six cows; 2 Jerseys, balance common cows, dairy type. Cost of feed per cow $26; average ration, ground ear corn, 8 lbs.; corn fodder and clover hay in winter. In summer a very little corn and pasture.

Returns for butter fat per cow, $41.78; average number pounds of milk per cow, 4,920; average number pounds butter fat per cow, 215.7; price of butter fat 19.4 cents; price of milk per 100 lbs., 84.9 cents; value of butter fat for one dollar's worth of feed, $1.61; net profit in butter fat per cow, over cost of feed, $15.78.

No. 4. Six cows; grade Durham, beefy type. Cost of feed $25; ration, ear corn, clover and timothy hay and corn fodder in winter. In summer pasture only.

Returns for butter fat $25.89; number lbs. milk, 3,000; number lbs. butter fat, 130.3; price of butter fat, 19.9 cents; price of milk per 100 lbs., 86.3 cents; value of butter fat for one dollar's worth of feed, $1.03; net profit in butter fat per cow, over cost of feed, $0.89.

Now these two herds, of the same number of cows each, were fed practically alike; each has good stables, and apparently good care. Why should No. 3 make a good profit, while No. 4 was working for very small wages indeed? When I saw these herds, before I knew anything about what they had produced, I wrote in my notes on No. 3 "dairy type," and on No. 4, "beefy type." Now, that is the only reason I can discover for this great difference in results. It is true, no doubt, that the steer calves of No. 4 are worth more for beef purposes than the others, but the heifer calves of No. 3 are worth most to rear for dairy purposes.

POOR FEED AND POOR CARE.

No. 7. Four cows; 3 grade Jerseys, 1 grade Holstein. Cost of feed, $18.50; ration, corn stover and straw and very little bran in winter. In summer, pasture only.

Returns for butter fat, $18.17; number pounds of milk, 2,443; number lbs. butter fat, 96.2; price of butter fat, 18.8 cents; price of milk per 100 lbs., 74.4 cents; value of butter fat for one dollar's worth of feed, $0.98; received for butter fat, 33 cents less per cow than the food she ate was worth. His stable was cold, cows poorly cared for. The value of the feed was not much, but the cows did not pay for it, small as it was.

DIFFERENCE IN MEN AS WELL AS COWS FOR DAIRY WORK.

No. 17. Seventeen cows; one Guernsey, some grade Guernseys, but most of them common cows of no particular breeding, which the owner had selected and bought around in the country, and nearly all of good dairy type. Cost of feed, $27; ration, "oat feed" (cost $13 per ton) 6 lbs.; at times, same amount of bran instead; silage 40 lbs., clover hay and corn fodder in winter. In summer 2 lbs. oat feed and pasture.

Returns for butter fat, $46.95; number pounds milk, 5,436; number pounds butter fat, 239.3; price of butter fat, 19.6 cents; price of milk per 100 pounds, 86.4 cents; value of butter fat for one dollar's worth of feed, $1.74; net profit in butter fat over cost of feed, $19.95. Stable is excellent; cows fastened with swing stanchions.

No. 21. Eight cows, one-half of them two-year-old heifers, one three-year-old, all fresh in fall except two; grade Holsteins except 2 common stock. Cost of feed, $22; ration, 2 pounds oat feed, 1¼ pounds oil meal, 45 pounds silage, and corn fodder in winter; in summer, pasture only.

Returns for butter fat, $44.41; number pounds milk, 6,088; number pounds butter fat, 220.4; price of butter fat, 20.1 cents; price of milk per 100 pounds, 72.9 cents; value of butter fat for one dollar's worth of feed, $2.02; net profit in butter fat over cost of feed, $22.41.

No. 23. Seven cows. They are a mixed lot of no particular breeding; they are not good dairy type, neither are they good beef type; still they are in good condition, showing they have been well fed. Cost of feed, $20; ration, 2 ears corn, 30 pounds silage, clover hay and corn stover in winter; in summer one ear corn to call them in to be milked, and pasture.

Returns for butter fat, $23.39; number pounds milk, 3,036; number pounds of butter fat, 124.7; price of butter fat, 18.7 cents; price of milk per 100 pounds, 77 cents; value of butter fat for one dollar's worth of feed, $1.17; net profit in butter fat over cost of feed, $3.39.

I must make some comments on these last three numbers. They all three fed silage and all have good comfortable stables, but Nos. 17 and

21 made large profits, while No. 23 got but little more than the value of the feed, and the chances are that he would not have got that little profit had he not fed silage. Then why the difference? It is in a great measure because of the difference in the type of cows, but I discovered another reason (no matter how) which may have, perhaps, still more to do with it. No. 21 made, considering the age of his cows, the best showing of the three. Although he did not get the greatest returns per cow, he got the most for a dollar's worth of feed. No. 21 takes excellent care of his cows, doing everything possible for their comfort. He feeds with the utmost regularity and he begins milking at the same tick of the clock every time, no matter what other things are pressing.

No. 23 is apt to consider other work of more importance than caring for the cows, so they are fed and milked when it is most convenient. When there is a rush of work, they are milked, at times, very early in the morning, and at night they are milked when everything else is done. At other times it is the reverse, they are milked late in the morning and early at night. So it happens that the cows never know when to expect to be fed or milked, and no cows can do well in giving milk with such usage.

FED SILAGE TO SOMEWHAT BEEFY TYPE COWS AND GOT FAIR RETURNS.

No. 19. Nine cows; grade Angus; most of them of a rather beefy type. Cost of feed, $20.50; ration, a small amount of oat feed, 35 pounds silage, clover and timothy hay and corn fodder in winter; in summer, pasture only.

Returns for butter fat per cow, $36.65; number pounds butter fat (he has a separator and sends cream) per cow, 192; price of butter fat,19.1 cents; value of butter fat for one dollar's worth of feed, $1.79; net profit in butter fat over cost of feed, $16.15.

It will be seen by this that with the use of silage, for winter feed, so as to provide succulent food the year round, a fair return in dairy products can be had even with cows not strictly of the dairy type.

A FINE DAIRY HERD AND A FINE BEEF HERD.

No. 29. Seven cows; Holsteins and Holstein grades, excellent dairy type. Cost of feed, $30; ration, ear corn, 5 pounds; bran, 3 pounds; a little oil meal, shredded fodder, corn stover and clover hay in winter; in summer, pasture only.

Returns for butter fat per cow, $61.09; number pounds butter fat per cow, 316.7; price of butter fat, 19.3 cents; value of butter fat for one dollar's worth of feed, $2.03; net profit in butter fat over cost of feed, $31.09.

No. 31. Fifteen cows; grade Shorthorns, excellent beef type. Cost of feed, $35; ration, 4 pounds bran, 4 pounds corn, 2 pounds oil meal, timothy hay, and shredded corn fodder in winter; in summer, pasture only.

Returns for butter fat per cow, $22.96; number pounds butter fat, 119.3; price of butter fat, 19.2 cents; value of butter fat for one dollar's worth of feed, $0.66; value of butter fat was $12.04 less than cost of feed.

This patron is in the beef business. Many of his cows he does not milk at all, but lets the calves run with them, but those 15 which he milked he selected from his herd, possibly because he thought they were the best milkers, but mainly, he said, because they milked "easiest;" got a hand separator, milked the cows, separated the milk, and brought up the calves "by hand." His cows were fed high—he says about the same as his fattening steers, and were fat all the time. He told me his calves at weaning time were worth $15 to $20 each, and his three-year-old steers brought $65 each.

He seems to be doing well, for his keeping so much stock is maintaining the fertility of the soil, so his land is very productive; but is he doing as well as No. 29, who gets more than 2½ times as much per cow for his dairy products, even if his calves and steers do not bring so much?

SCRUBS AND A SCRUB FARMER.

No. 28. Seven cows; grade Jerseys, scrubby looking. Cost of feed, $23; ration, ear corn, 5 pounds; shredded fodder in winter. In summer, pasture only.

Returns for butter fat, $23.48; number pounds butter fat per cow, 125.8; price of butter fat, 18.7 cents; value of butter fat for one dollar's worth of feed, $1.02; net profit in butter fat over cost of feed per cow, $0.48.

GOOD COWS AND GOOD CARE.

No. 42. Two cows; 1 Jersey, 1 grade Jersey, one of them an exceptionally fine looking animal of the best dairy type. Cost of keeping, $30; ration, ear corn and oats ground, 10 pounds, and corn stover in winter; run loose in box stalls; in summer, pasture only.

Returns for butter fat, $46.23; number pounds milk per cow, 4,378; pounds butter fat per cow, 228.5; price of butter fat, 20.2 cents; price of milk per 100 pounds, 105.6 cents; value of butter fat for one dollar's worth of feed, $1.54; net profits in butter fat over cost of feed, $16.23.

PATRONS WHO FEED NO GRAIN.

No. 14. Six cows; common stock with a little Jersey and Holstein blood, of very good dairy type; fresh in spring. Cost of feed, $19.50; ration, good corn stover in abundance, fed in yard in pleasant weather, but when not pleasant, fed in mangers in good comfortable barn.

Returns for butter fat, $38.27; number pounds of milk, 4,743; number pounds butter fat, 203.6; price of butter fat, 18.8 cents; price of milk per 100 pounds, 80.7 cents; value of butter for one dollar's worth of feed, $1.96; net profit in butter fat over cost of feed, $18.77.

No. 32. Eight cows, common stock, fresh in fall. Cost of feed $18.50; ration, shredded fodder and corn stover in winter; in summer pasture only.

Returns for butter fat, $16.73; number pounds of milk, 1,962; number pounds of butter fat, 84.2; price of butter fat, 19.9 cents; price of milk per 100 pounds, 85.3 cents; value of butter fat for one dollar's worth of feed, 90 cents; value of butter fat less than cost of feed, $1.77 per cow.

Here we run up against unusual conditions. These two men feed no grain in winter to dairy cows, except what little they might chance to find in the fodder. No. 14 made a good profit and No. 32 suffered a loss. No. 14 told me he used to feed grain, but he was satisfied now that he could make more clean profit without feeding it.

He said he might get a little bigger returns by feeding it, but it was too expensive. He said when he fed grain his cows were all the time looking for it, and would not eat their coarse fodder as well as they did now when they could expect no grain.

No. 32 evidently reasoned the same way, but his results were a sad failure. I suppose you are wondering what made the difference. I think I can make it clear to you. No. 14's cows were fresh in the spring. They were wintered without grain, but fed and cared for so well that they were in fair condition, when they came fresh in the spring, and went on to good pasture, and produced well during the summer.

No. 32's cows were fresh in the fall and they could not keep up the flow of milk on dry fodder without grain in the winter, so when spring came they were so near dry that the summer flow amounted to but little.

While some men get more out of cows that are fresh in the fall than they could get from them if fresh in the spring, they do it by feeding some grain, and providing succulent food in winter.

A CHAPTER OF AVERAGES.

The number of cows kept by these 50 patrons was 282. Average cost of feed per cow, $24.96; average returns in butter fat per cow, $32.20; average number pounds butter fat per cow, 166; average price of butter fat, 19.4 cents; average amount for one dollar's worth of feed, $1.29; average net profit per cow, $7.24. There were 5 patrons having 45 cows who fed silage last winter, and their average net profit was $16.74 per cow. There were 45 patrons having 237 cows, who did not feed silage, and their average net profits per cow was $5.57—$11.17 less.

VALUE OF SKIM MILK.

I asked those I interviewed whdt, in their opinion, was the value of skim milk for feed. I got answers from 45. They run all the way from nothing to 40 cents per 100 pounds.

The most of them said they did not know just how much it was worth, had no means of knowing very accurately, but they all, with the exception of the two extremes I have mentioned, guessed it to be worth from 10 to 25 cents a 100 pounds.

One man was very positive that the skim milk he got back from the creamery was worth absolutely nothing. One man answered promptly and in a positive manner, "40 cents."

I said, "Do you think you can get that out of it?"

"I know I can, now that I have a farm separator."

"How?"

"By feeding it in connection with other feed to such pigs as those," pointing to a splendid lot of young hogs, which, I think, were thoroughbreds. Then he added, "I could not raise as nice pigs as those without the skim milk."

DOES IT PAY TO TAKE DAIRY PAPERS?

One other question that I asked each one, was, "Do you take and read a dairy paper?

Nearly all of them take agricultural papers with a little dairy reading in them, but only six of those I asked take any paper especially devoted to dairy. These six take Hoard's Dairyman and some of them The Dairy and Creamery.

I felt curious to know whether those who took dairy papers made enough more profits out of the business to pay the subscription price of the papers. I figured it up and I find that the six who take Hoard's Dairyman averaged in net profits per cow, for butter fat, over cost of feed, $11.07, while the 44 who do not take a dairy paper averaged, in net profit per cow, only $5.58—a difference of $5.49 per cow in favor of the man who tries to inform himself by reading the experience of others who are engaged in the same business as himself, and who reads the investigations of scientists, along dairy lines, in the matter of feeding cows and all the other problems that arise to confront the dairyman.

CONCLUDING REMARKS.

Now in conclusion, I have to say that you have here a very fine country with a soil naturally fertile, peopled with intelligent and enterprising inhabitants, as is evidenced by the fine farm buildings and the excellent system of drainage, which I admired very much.

You have done very well in the dairy business as far as you have been engaged in it. On the average, those I have interviewed in taking this census have made it profitable. Some have made it very profitable, while others have worked for nothing or nearly nothing. It is so everywhere. Here, as elsewhere, there is great room for improvement. That is why we are doing this kind of work, hoping that we can all learn something.

There is one serious criticism I have to make about your dairying here, and that is you don't do enough of it. You ought to do four times as much, and then you could stop the depletion of the fertility of the soil which I see on many farms is going on; you could make more money, have more of the good things of this world while you live, and when you go, you would leave, in the form of more fertile soil, a rich inheritance to those who come after you.

DISCUSSION.

Mr. Rippey: What do you think of feeding too much silage to the cow?

Mr. Goodrich: I think it is not best to have a full ration of silage. I think the cow will do better to have some dry fodder with it. I thought about thirty pounds with my smaller cows was about enough.

Mr. Rippey: Some cows will eat more than thirty pounds, and still eat some dry feed.

Mr. Goodrich: Yes; it depends on the cow. There is a good deal of difference in the silage. If it is well eared you do not need to give so many pounds. Prof. Haecker, of the Minnesota Station, advocates planting the corn so thick that it will have no ears on it, and he is very positive he is right in it, while I do not believe in it.

Mr. Rippey: You like pretty good ears?

Mr. Goodrich: My idea of planting corn for the silo is to plant it about thick enough so you can get the largest proportion of grain, and the largest amount of fodder to go with it. So I plant it about twice as thick as I would if I plant for ears alone. Thus I get nearly twice as many ears, but they are smaller, and I get more fodder to go with it. I want to get all the corn I can and all the fodder.

Mr. Rippey: Would you give the cows all the silage they will eat with the dry fodder?

Mr. Goodrich: No, I wouldn't do that. I like to have them eat it up clean. I would never feed an animal so it leaves something before it. As I go out in the morning I feed clover hay, for instance. I know just about how much they will eat. I give them plenty of water. Cows differ in their eating capacity. But I am around there, and as quick as they stop eating, I take it right away. I never allow any feed lying before the cows, and having them looking down on it and wishing they could eat it, and can't. Their appetites are always better. The best horseman I know of, a man who has imported a great many horses, and who fattens his horses quickly and at the least possible expense, never leaves any feed in the stable before his horses, except at meal time. That is the way it should be with cows.

Mr. Doud: Do you feed gluten food?

Mr. Goodrich: Yes; it is not as good as bran for building up, but it has protein in it which makes the cow give milk.

Mr. Doud: Gluten and corn?

Mr. Goodrich: Gluten feed and bran go good together. They have corn in the silage. That is about all the corn I care to give mine.

C. P. Clinger, Plymouth: Could beet pulp be shipped at $1.90 here, and be used for silage to good advantage?

Mr. Goodrich: I don't believe it is worth it. As near as I can figure it, it is worth about half as much as corn silage.

Mr. Knox: Can you put sixteen tons in one bed profitably?

Mr. Goodrich: What would they sell it for?

Mr. Knox: About $12.

Mr. Goodrich: They don't put sixteen into one bed?

Mr. Knox: They claim to.

Mr. Goodrich: They put nine or ten. I went last winter to the factory, and talked with Mr. Hathaway, the superintendent, and he wanted me to get interested in it, so I would advertise it, and induce our dairymen to buy it. He asked me if I thought the dairymen of Wisconsin would buy it if they could get it for $10 or $12 a ton. I said, "No, it will take nine or ten tons of the wet pulp to make one of the dry, won't it?", That is what it takes. He told me so. But the circulars he sends out are different. I don't know about the dry pulp. But of the wet pulp. I have talked with a great many men in the vicinity of the factory. Some of them thought it would be valuable if they did not have to draw it a great ways. Some of them thought it would be worth a dollar a ton. I talked with W. H. Gilbert, who has 800 acres of beets, and who is a large owner of cattle, and he put the pulp in the silo, and he says it is good feed to go with something else as a sort of appetizer, and that it is a succulent feed. There is too little nutriment in it to keep animals on it.

J. W. Hursh: I have been in the dairy business quite a good many years and I haven't a silo. Now, possibly I might be regarded as a back number, but it seems to me there is such a variety of conditions it might be possible in some cases that a man would reap as much benefit without the silo as with it. Where there is a large range of blue grass pasture, or spear grass, or whatever you may call it—when there is no snow the cows could have access to it, and this furnishes a succulent feed for my herd; and then by supplying corn and oats, which is my principal ration—my herd of cows do very well. They have averaged me, without the silo—well, I think, at the close of the year, as near as I can get at it, a little over $50 apiece. There are 30 of them. In that number are some heifers. Some don't go so high. So some must go nearly $60, without the silo, using as rough feed shredded fodder, clover hay, and straw. They have access to that, which possibly compensates somewhat for the bean ration, but I do not get sufficient profit from that, and relieving me of the cost of putting up the silo—under those circumstances, would I not be justified in not feeding silage?

Mr. Goodrich: Well, it might. Do you live in this State?

Mr. Hursh: Yes.

Mr Goodrich: In the southern part?

Mr. Hursh: No; near Fort Wayne.

Mr. Goodrich: Of course your stock can not get grass all winter, can they?

Mr. Hursh: What I mean to say, at the present time they do not get a great deal, but with the shredded fodder, the clover hay and oats and corn ground together, they do not shrink to amount to anything, but since the ground is bare, can't we leave them out all day?

Mr. Goodrich: What time do your cows come in?

Mr. Hursh: We average or try to have them come in at various periods, so as to keep up the supply of milk, in order to supply the amount of butter we need each week.

Mr. Goodrich: We know, and so does every man that has kept cows, that succulent feed, with the natural juices in it, will aid in the production of milk. A cow will produce more milk on that kind of feed, than where the natural juices are dried up. With the silage you can feed cheaper, because it is all digestible, and it is a succulent feed, and the cost of putting up the silage is less than cutting and handling the corn any other way. And you get more of it, and more from it; so it is economy in this light, at any rate. I don't know further south where they can get grass in the winter, they may not need it, but I think it would pay any dairyman here to have a silo. I think if he puts it in the right state, and feeds it right, he can produce butter cheaper. Perhaps you have discovered it by this time, I am one of these fellows who is always figuring, and must know the cost of a thing. Farmers say they can't tell the cost of their stuff. I would not farm a minute if I could not tell the cost, or be a merchant unless I know what my goods cost, or be a manufacturer a minute (as I am now) unless I knew what it cost to produce the goods. I used to figure what a pound of butter cost me, work and everything else. I have held my watch on the boys, so that I knew the cost of producing a pound of butter. My cows produced about 300 pounds of butter per cow. It cost me 16 cents a pound the year before I had the silo, counting all the work at just what I would have had to pay for it, counting the board of the ones that worked. My butter cost me 16 cents. It averaged me more than twice that when I sold it. I wanted to make more. Do you know, man works to be satisfied? He isn't much of a man if he is satisfied. If a man is satisfied this world is no place for him. Then I put up a silo, and figured it just the same way as close as I could, and it cost me 12 cents a pound to produce the butter. I reduced the cost of production 4 cents a pound by using the silage. I wasn't trying to prove that a silo was good or bad, but I found out it was a cheaper feed. It took less labor to feed the cows, and the cows produced fifty pounds more butter in a year at 32 cents a pound. Don't you see how it is counted up? It is possible that fifty pounds was not all caused by the silo, because I was gradually building up my herd, gradually raising it to be a little better each year; but I made a bigger jump that year when I changed and put in the silo. I must insist it will pay any good tidy farmer to build a silo. I know some of those kind of men in Wisconsin, and I presume there are some men as shiftless down here as they have up there. Poor, shiftless farmers never do anything right, or on time. A silo will not do them any good. It will leak, or it will not be put in right. Such a farmer will not get his corn in until too late, and it will heat and mildew, and when he throws the moldy stuff out to the cattle it will taint the milk, and it will be rejected by the creamery. Of course the silo will be of no benefit to such men. But I don't suppose I am talking to such men here. If I am, take it to heart.

Mr. Reamer: Have you any certain kind of corn you plant for silo?

Mr. Goodrich: I have planted different kinds. At first I planted this big southern corn, which grew up 16 feet high. It probably would produce twenty tons to the acre. It did not mature enough, and it made sour silage. So I tried a corn that would sufficiently mature—a flint corn, and that was better.

Mr. Johnson: At just what particular time or state of maturity do you put up your silage or use the corn?

Mr. Goodrich: The first silo I had I put the corn in too green, and it made a poor sour silage, and there wasn't much nutriment in it. My opinion is, the time to put it in is just the time you are going to cut up your corn to husk, and have your fodder. It has the most nutriment in it at that time. If possible you had better commence a little sooner for fear it will take you too long. The best time is when the lower leaves on the stalks are turning yellow, and on some of the earliest ears the husks are turning white.

Mr. Johnson: In reality it is when the corn has matured?

Mr. Goodrich: The corn and stalk have the most nutriment in them at this time, and they are the most digestible at this time. After the stalks have turned to a woody fiber they are indigestible. Sometimes the frost comes, and you can't fill your silo right away, and the leaves dry up, and then all you can do is to let it get to the right state of maurity and put it in as quick as you can.

Mr. Reamer: What is the per cent. of nourishment in the stalk in the corn crop, and what in the ear?

Mr. Goodrich: Where there are big ears, and not a very big stalk, you know it is about 40 per cent. in the stalk. It varies a good deal.

Mr. Reamer: That is the reason I asked you the question. Corn varies according to the amount of this sappy substance in it, and in a large stalk there is liable to be more sap.

Mr. Goodrich: This very large southern corn did not satisfy me very well. I would rather have fewer tons, and have it better. The best silage I ever had was from some flint corn. I think it yielded ten tons to the acre. Cut worms had destroyed a 20 acre field of my corn, and I planted this flint corn in June. It was in low land. It had been a swamp. This made a little the nicest silage I ever had. It was well eared, and lots of stalks and leaves, and a less proportion of woody fiber than any corn I ever had.

Mr. Lamont: People who produce herds not worth what the feed costs, how do you suppose they live?

Mr. Goodrich: Some of them have had industrious ancestors that bought their land when it was very cheap, and they have inherited it, and now it has gone up in value; and though they do not get much for their work, they live.

Mr. Lamont: This question has been answered in several of the dairy papers, but none of them seem to come to the same conclusion.

Mr. Goodrich: Some of these on the chart did not get enough from the creamery to pay for the feed of the cows. They have got beef herds, and they are getting their return in another way.

Mr. Reamer: They are living on back issues are they not?

Mr. Goodrich: I guess so.

Geo. Schlosser: What per cent. is the dry fodder of a corn crop per acre? What per cent. of a crop would you call a fodder crop?

Mr. Goodrich: Do you mean the per cent. of the weight?

Mr. Reamer: What is the value of it? You say 40 per cent. is the value. What is the per cent. where you cut it up and husk it, and put it in the shock.

Mr. Goodrich: It would be less. In the first place the stalk, if the corn is well eared, don't weigh quite as much as the corn. Then a good share of that is woody, hard fiber, which cows can not eat; and there isn't over one-half of it they can eat if it is put in a manger where they can't waste it. As it is usually fed out in the barn yard they chase one another over it and do not get more than one-fourth of it. So you see they would not eat over 12½ per cent., figuring that way.

Mr. Johnson: One other question. In taking our fodder corn and putting in the shock, about what per cent. has been damaged—what per cent. of the feed value will you lose by the time it cures up.

Mr. Goodrich: It depends on the weather a good deal. They tried some down at Madison, and it lost 20 per cent. But that was very misleading. I know how that was done. It was cut up and shocked in the fall, and stood there a while without a bit of rain, and then it was hauled into a shed or barn and cured there under shelter; and then it had lost only about 20 per cent.; and if that was put in the silo something about like 10 per cent. would be lost. You know we lose a great deal more than that every time.

Mr. Doud: At what state of maturity do you put it into the shock?

Mr. Goodrich: At about the state I mention—maybe a little later this year; for corn has been a little slow in maturing this year.

Mr. Doud: Is it better to let the fodder get dead ripe?

Mr. Goodrich: Don't wait until it gets dead dry. I don't think frost helps the fodder any.

Mr. Hursh, of Fort Wayne: What per cent. is lost usually in the silo?

Mr. Goodrich: Not over 10 per cent. Poor silage the stock won't eat.

Mr. Rippy: Mr. Goodrich, do you say you commence feeding right away from the silo as soon as you fill it?

Mr. Goodrich: No, sir. The stock like it better after it has been fermented a little in the silo. They like it better than they do fresh corn.

President Schlosser: I would like to have Mr. Goodrich spend a few minutes giving us some idea how to secure more cows that will make 360 pounds of butter, and to give his experiences in building up a herd. We want to learn how to get a good cow.

Mr. Goodrich: I would rather somebody else would blow my horn than blow it myself. I commenced in 1875 really to go to work in earnest to build up my herd. I had not kept an accurate account. My cows would then average about 150 pounds of butter annually. Then I went to weighing the milk and testing it. I knew which cow gave the most milk, and the quality, and I soon found out some of the cows were not paying. I got a sire of as good Jersey blood as I could, and after weeding out the poor ones for a few years there was a gain. Then when we began to have heifers of the dairy breed there was a further gain. I kept on testing my cows. As soon as the Babcock tester was invented I got that. I raised heifer calves from the best cows: I didn't care a cent how the cow would look. Remember that. The cow that would produce the most was the one for me. I didn't care if she was of the shape of the camel or the giraffe. "Handsome is that handsome does," was my motto. I was in the dairy business to make money. That was what I was after all the time. After I had begun to get along pretty well I read that some people got 300 pounds of butter from their cattle, and I said, "I can do that if anybody can." I set the mark there. My record showed a constant gain all the time. The next year it was 320 pounds; then the next year, 327; and the next 337; the next, 354. And then I let one of my boys, who had been brought up on the farm, run it. He got married, and I said to him, "My boy, are you going to do as well as your dad?" He said he didn't see any reason why he should not. I said, "You will find out." I wanted to spur him up to do the best he could. I says, (sometimes we talked pretty big to our boys. I says, "I calculated to make one of those cows produce a pound of butter a day for each day in the year—365 pounds." He said, "If you can do it I can." I said, "Try it." Do you know when he came to figure it at the end of the year —I was there and we were figuring it all up—and it figured 366. He said, "There, father, I have beaten you; I have got more than a pound a day." I said, "Hold on, my boy, this is leap year; there are 366 days this year." [Laughter.] That year there were twenty-five cows, and four of them were two-year-old heifers; four were three-year-olds, and the others were matured cows. Nine of the matured cows produced a little less than 400 pounds. That is not bragging very much. I know some men who are doing better than that. They have more money in it, and worked hard at it, and I don't know but more years. Governor Hoard had a magnificent Jersey. He has a Guernsey now. He has been working into the Guernsey breed. He had a magnificent Jersey heifer something like this picture here on the wall. I know the milk was weighed and I know it was tested, and I don't think the honest Dutchman who did the testing did anything only what was right. Mr. Barnes, of Oakfield, had two cows, one of which produced 912½ pounds of butter in one year and the other 828. That came very near being an official test. Mr. Barnes cared for the cows, and lived right with these cows for a year; and he has told me he will never undertake such a job again. He weighed the milk, and sent a sample to Madison to be tested. You all know he could cheat a good deal in that. He could take an unfair sample; but once in three or four weeks a representative of the Station came out to his farm and dropped in on him unawares, and saw the cows milked, and took samples, and had them tested, and apparently corroborated Mr. Barnes' work. He sold those cows when they were eight years old for $20.00 apiece, and put in a calf for $7.00 with them.

The President announced the appointment of the following committees:

Auditing Committee—Mr. Compton and Mr. Fidler.

Committee on Resolutions—Mr. Lamont, Mr. Calvin, Mrs. Schenck, Isaac Reamer, Mr. Johnson.

Committee on Nominations—Mr. Knox, Henry Schlosser, Mrs. Lamont.

Legislative Committee—Mr. Johnson, Mr. Drischel, Mr. Burnside.

TROUBLES OF THE RETAIL DAIRYMAN.

I. B. CALVIN, KEWANNA.

Mr. Calvin: I want to emphasize one point made by Mr. Goodrich, and that is love for the dairy cow. It is a usual thing, I hope, for you dairymen to carry a nubbin around in your pocket as you go through your herd and give the cow a nubbin instead of a clubbin'; speak as gently to her as to your neighbor's wife; put your arm around her neck, pat her on the cheek, lover her a little, (the cow I mean—not your neighbor's wife.) [Laughter.] I live in the little town of Kewanna, a town of about 700 people. I started peddling milk two years ago the 16th day of last September. We have run our wagon ever since then, and twice a day in the summer, Sundays, holidays and everything included. We claim we are making money now. We run it the first year probably without very much profit. But what I want to say is this: We have one of the nicest little towns, inhabited by the nicest people in the State of Indiana—Plymouth excepted, of course. Now then, for me to come up here and give the trials of a retail milkman puts me in mind of a deacon who always asked the blessing at the table. He asked the blessing, and after he got through they went to eating and everything was spoiled. The potatoes were burned, the steak wasn't done, the coffee was too weak. And he went to grumbling about what he had to eat. His little daughter was at the table, and she says, "Papa, does the Lord hear everything you say now, just the same as when you asked the blessing?" He said, "I suppose he does, daughter." "Well, then," she says, "which does he believe?" I am afraid if my Kewanna folks knew I had troubles and that I come up here and talk about them and they know what I think of them, they would wonder what they are to believe. But I must say I think well of our community. But it makes no difference in what community we live, or in what business we are engaged, we all have trials, I suppose. When I first saw this subject on the program I supposed it meant probably the trials of those fellows arrested at Chicago. I saw through the daily papers that they have arrested 43 milkmen. I found out since that is not what you want.

In the first place, if we make a right start, it does just as well. In the production of milk for the retail trade you must be just as careful with your herd and everything else, and more so in regard to cleanliness, than when you produce butter. If we start right we will not have the trouble we otherwise will have. Of course we will have sour milk, and bad flavored milk, and there will be times when our customers will complain of the milk not being rich enough and being too rich and all that sort of thing. I never had but one complaint from a customer that the milk was too rich. I had that just the other day. I lost the customer, but there was a gentleman just across the street who had a cow, and I think that was the reason. Now, we must give good delivery service. I came up here two years ago last August, I believe it was, or September, at the Dairy Institute here, before I went into the retail business. I did this to learn how to go about the milk business. We had been in the butter making business on a small scale. I found that the retail men are not much in it at these institutes; the creamery and buttermen seem to predominate in these meetings, but by picking out the retail men, and talking to them privately, I learned a great many things. But I have learned a great many things since then. The principal thing that I learned was to start right. We bought a good milk wagon. Some of my friends advised me when I went into the milk business to get a big can, and take some old buggy or spring wagon, and deliver out of the can; that such a wagon would be less expensive, and then if we did not like the business we could quit. One friend in particular said, "If a thing is worth doing at all, it is worth doing well." I went to South Bend. I bought as good a wagon as the Studebakers make. I bought bottles, and we bottled our milk. I do not sell milk any other way. There is only one thing I sell in bulk, and I carry in a can (that comes later on), and that is cream. I will tell you why I do that later on. The delivery must be prompt. We do not vary the time we start delivering one-half hour from one year's end to the other. Our customers set out the empty bottles. We take up the empty bottle and place a full one in its place. We deliver these bottles in the parlor or on the back porch, or any other place they want it. When we get to a house they are expecting us. I timed myself once. We started and delivered to 50 customers in 55 minutes from the time I started with the first customer until I got through with the last one. The same man should deliver the milk all the time. It won't do for one man to go one day, and another the next day, or for one man to go in the morning and one in the evening.

There is always something transpires in the morning that has to be tended to in the evening, or the next morning, and you miss things and make mistakes. In order to do this one man must drive the wagon all the time. The milkman is expected to be the choreman. I have lived in the community ever since I was eight years old. I know every man, woman and child in the community. You might say I am intimately acquainted with them. Since I started in the milk business I have been asked to do almost everything a man could think of—even to splitting wood. That I did not do. I was never quite so badly taken back as I was that morning. I had on a fur overcoat, and the thermometer was down 10 or 12 below zero. I was a little ashamed of myself, too, because it was the home of a widow—but then she was not needy, and I knew it. She had a big stick of wood on the porch, about three feet through. She met me at the door with an ax, and asked me to split that stick of wood; it had a big knot in it, and no man could have split it. I said, "No, thank you. I don't split my own wood. My wife does that." She said, "That is all the wood we have got." I said, "There is your neighbor's wood pile. Before I would split that stick for you, I would go and steal a load of wood for you." Of course she would not let me do that, and I went away and did not split the wood. One of the greatest troubles I found when I started in the retail milk business was the town cow. The meanest man in a town is the man who keeps a cow, and sells milk to his neighbors—that is, from the retail dairyman's point of view. The next meanest man in town is the man who keeps a cow for his own use. They are both pretty close together. One doesn't hurt quite so bad as the other. I have tried several things in order to get rid of the town cow. When I first started I concluded I would buy the town cow. I ran up against a stump with the first one I bought. She belonged to a dairyman in town. He had a good business and did not need to keep a cow for his own use. He met me up in the town and he said the cow did not belong to him, but to his wife, and that she wanted me to go down and buy the cow, and that she would go to buying milk from me. That was along the line of what I had thought of following out. She priced the cow to me at $45. I said, "I can't buy her." She said, "I am crippled up with the rheumatism until I can't milk any more, and you are running a wagon now, and doing about the right kind of business, I understand from the neighbors, and I thought I would sell out to you, and go to buying your milk." She said, "I have five customers; I will turn them all over to you." Well, I thought that was pretty good. I made her an offer, and gave her forty dollars for the cow. I found out that already I had all her customers except one. She went to that customer with me and told her she had sold out. I talked nice to her. She was a widow, and pretty well fixed. I got her trade. That was all the customer I got from this town cow. This woman that sold me the cow, before she had used up 50 cents worth of pint tickets came out one morning, and she said, "Mr.

Calvin, what do you think of me? I have gone and bought another cow." I said, "Now, that is not right." My hair used to be red. It is getting gray. Such things as that caused it. So I drove off and left her. I have not spoken to her since, and she has not to me. She keeps another cow, and she sells milk. Of course, I haven't much love for her. I have bought other cows, and have come out all right, and stopped the sale of their milk. I have customers today who used to keep town cows, but who would not keep a cow if they can buy milk from a wagon. I have customers who used to patronize them; because it is so much handier to get the milk from the wagon, and get it regularly, and get good milk. I have some patrons I want to tell you about. They will patronize the town cow 9 or 10 months out of the year, and then when the town cow goes dry they will come to the wagon and want milk. I have tried this on some customers and it works all right. I say, "Here, do you expect to stay by the wagon when that cow comes in fresh again?" Well, they almost invariably say "Yes," and I see to it they do. Sometimes they say "No," and I let them do without milk. There was one family I was afraid to refuse milk to. He was a restaurant man. I was furnishing him milk at the restaurant. He was a good customer there, taking from two to five quarts a day, more times four quarts than any other amount. His wife wanted milk for the family a while. The cow of the drayman's wife had gone dry. She wanted milk from the wagon until that cow would be fresh again. Although I was afraid it would lose me the restaurant customer, I said, "No," and I made it a point the same morning to see the man and have a talk with him; and I still sell milk to the restaurant, and she still gets milk from the cow. In starting I wasn't quite so independent. As I got further along, and got to making a little money out of it, I could afford to be a little more independent about the town cows. I suppose the first year the woman would have got the milk; the second year I would not do it.

Then another kind of cow I have had trouble with has been the "baby cow." When I started into the milk business, there was an old man and old lady who were wealthy. They had kept cows for 10 or 15 years. They lived in town. They kept five or six cows and sold milk from these cows. I went to them and tried to buy them out. "No," they wouldn't sell. "Well," I say to myself, "the old gentleman is getting old, he isn't liable to live very long." I had made a canvas of the town, and had seen what I could do, and I concluded I would start a wagon anyhow. I had reasoned right, for, unfortunately for him, he died in less than a year, and I was selling milk to the family. They had quit business. While they had been selling milk for 10 or 15 years they had kept what they called "the baby cow." It had become an axiom of the town that milk for the baby should come from one cow, and one cow's milk always. The whole town had been educated to think that, and how to overcome it I did not know. So I used a little deception. I don't think it was mean.

I believe I was honest in it. I watched things very closely. I did this. I says, "Now, I will give you good milk. We always have three or four fresh cows. I have been told the milk from a herd is better than the milk from one cow. We will furnish you milk which we know is good. Mark your bottle. We marked their bottles, but the milk was just the same as all the milk was. I inquired after those babies every day. I never had any complaint about the milk, except this woman the other day who said the milk was too rich. We have had babies raised on our milk right along all the time, so I believe I was conscientiously right in using a little deception.

We have had some trouble with our bottles. We have had lots of bottles broken. Instead of using a sharp fork to take the cap off, they take something round around the edges, and sometimes they break the bottle. I haven't solved that yet. I had a notion to send and get some picks, and give each of my customers a pick. We have lots of bottles broken that are not paid for. The better class of our customers would rather pay for a bottle than not. I pay 25 cents a thousand for caps. I use the crimp edge, which cost me 25 cents a thousand and are a good quality. One of the trials of the milk trade is that we have to deliver on Sundays and holidays. There are 365 days in the year, and on leap year 366. We can have no picnics. The wagon has to go. I do not care so much, but my wife and my boy like to go to picnics. I do, too, but when there is money in it for me to stay at home, I would rather stay at home. When we first started in business we skimmed our cream by hand. We had not run a year when we bought a hand separator. A man came and set the separator up. I didn't know anything about it, only knew enough to turn the crank. He said our separator turned out about thirty-two per cent. of cream. We never changed the cream screw since we had it, and we have been running it since a year ago last spring. The way we get the cream tested we send it to the Schlosser Creamery, and it tests from thirty-two to thirty-seven. Of course that cream will whip any place, if cold enough. We never had any trouble with our cream since we got our separator. Of course anybody that will grumble about thirty-two per cent. cream will grumble when they get to heaven because it isn't good enough. We did not at first know how to carry the cream. We first started taking orders ahead. If you wanted cream tomorrow, you had to order today. If you wanted it on Sunday you had to order a day or two ahead. One of my customers who had been up in Chicago said, "Here, why don't you carry a cream can?" I immediately sent and got a cream can with a measure on top—a, two-gallon cream can. Our customers all know that now we carry cream every trip, and that whenever they want cream all they have to do is to ask for it. Since we have that cream can, we have sold cream every time the wagon goes out. Before that we only sold cream once or twice a week. Another thing that helps out is the telephone. Sometimes a customer has forgotten something in the morning, and then all he has to do is to telephone out his order, and have the order filled the next morning.

The convention adjourned at 5 o'clock, Thursday, December 10, 1903, to attend a banquet at 5:30 o'clock, at which Mr. Goodrich of Wisconsin acted as toastmaster. Toasts were responded to by several.

THE DEVELOPMENT AND REQUIREMENTS OF THE MODERN MILK BUSINESS.

IRA O. JOHNSON, GRAND RAPIDS, MICH.

The modern milk business is certainly a very differently conducted business than the ancient. Since the teachings of our bacteriologists have come to be recognized as something the ordinary mind can comprehend, and the relation of the keeping qualities and healthfulness of milk to cleanliness can be measured by bacteriological research, the standard of the milk for city consumption has been materially raised. While there is a great chance for improvement in general, in nearly every city of any size there will be found some one catering to the best class of customers.

The demand for a better grade of milk is constantly increasing, as the people are becoming educated to the fact that there is a liability to contract disease by the use of filthy milk. In the past, our dairy schools have made a great effort to turn out men who could select a good cow, and feed balanced rations that would make a good record for the cow or herd by getting a large flow of milk. While such conditions are desirable and necessary, I am of the opinion that instructions along the lines of cleanliness in milk production should be given greater prominence. The man who can produce milk which will sell for from 50 to 100 per cent. more than the ordinary product on the market is doing humanity more good, and getting just as well paid for his labor, besides having the satisfaction of knowing that he is helping to raise the standard of the dairy business and make it what it should be, a profession, instead of what it is generally considered, something that any one can do if they are not qualified for anything else.

The milk business of today should be divided into three classes.

1. The dairyman who is a combination of business man, farmer and dairyman, one who learns his business from A to Z, will know how to pick his herd for giving a milk as rich in butter fat as possible, and still give quantity sufficient to make them profitable. No breed has a monop-

oly of this field. He will build his stables in such a manner that they can be easily kept sweet and clean, and he will then see to it that they are kept so. It will not make a good impression on a customer to visit the farm of the man from whom they are purchasing milk and find the cows and stables uncleaned at a time of day when they should be ready for inspection.

We make a practice of cleaning the stables early in the morning and sprinkling the floor with gypsum or land plaster, then sweep it into the gutter to help absorb the moisture. This leaves a very clean and pleasing effect, and I would not change it for anything I have ever seen practiced.

I hardly need say that it is positively necessary to have a neat and clean place to strain and cool the milk, and bottle, if bottling is done. Steam and boiling water are certainly necessary—this does not mean that you must go to any great expense in putting in a steam plant. There are plenty of cheap boilers and water heaters on the market, that can be purchased for $50.00 or less, which will answer every purpose, and no first-class milkman can afford to be without some steam equipment, as all utensils coming in contact with milk should be exposed to a temperature of 212 degrees Fahrenheit for a few minutes after each washing, and should be washed every time they are used.

Now the man who produces a really first class milk should have a better price for it when sold, and here is where he needs to be up to date, in business rules and requirements, as well as a salesman. There are many good salesmen who can sell a poor article and fool the people for a time, but a poor salesman can neither sell a good nor a poor article to any great extent. And I know of nothing that requires more tact and judgment than the satisfying of ladies and house maids, to whom milk is furnished in our cities and towns.

A neat, clean wagon, well painted and kept washed, as an advertising investment is, I think, a paying proposition. The driver should always have a pleasant smile and dress according to the class of trade he is catering to.

2. The second class of milkmen are in the majority and I will give very little time to their consideration, and we all know them and their methods practiced. They are just the opposite of the man who does understand his business. I have great respect and admiration for the man who does not know how, but is trying to learn and improve, especially in the handling of a product so delicate and easily spoiled as milk, but I have no use for the man who says that anything is good enough, and distributes a milk that is liable to cause sickness and perhaps death to little ones that are obliged to take what is given them, or starve, and such are the conditions where infants are raised on cow's milk.

3. The third class we do not have to consider, except in the larger cities. I now speak of the large companies who do not produce milk, but buy from the farmers and have it delivered to their depots in the city.

There are some advantages in this method, and I think I would prefer this class to purchase milk from, if I were buying; but they can never take the place of the first-class dairyman who sells to people who know him, and have confidence that he is giving them what they pay for.

The city dealer, if doing enough business, employs an inspector, whose duty it is to visit the farms, and see that the work is being done properly there, and samples of milk are tested daily both for butter fat and cleanliness, which keeps a very good check on the producer; and this is where they are better equipped for putting out a satisfactory product—they can compel the producer to furnish a good milk, and if they understand their business they will take good care of it after it reaches them, and until delivered to their customers.

A greater number of the people are demanding a better milk and it keeps the dairyman guessing to keep up with the procession and meet competition the same as in every other business, and the man that can handle a large milk business on a profitable basis, never need look for a position. I would advise very careful investigation, and a positive knowledge that the proper man who has proven himself a dairyman is available to manage the city end of the business, before investing in such an enterprise. Usually such companies are promoted by some one not at all familiar with the handling of milk, and some one is elected to manage it who knows nothing of the nature of the delicate product he is to handle, consequently it is the history of most of such companies that the original investors do not get the returns expected. However, I am of the opinion that there should be only the first and last class of milkmen doing business in any city. As the middle class is in majority I do not look for such a change until the consumer makes it impossible to sell an unknown quality of milk.

WHAT DAIRYING HAS DONE FOR CANADA.

PROF. H. H. DEAN, ONTARIO AGRICULTURAL COLLEGE.

Mr. President, Ladies and Gentlemen:—I should scarcely have had the nerve to address you on this topic had it not been selected and assigned to me by the officers of your Association. Canadians are proverbially modest and not given to talking very much about themselves or their country. However, we have been giving considerable attention to the dairy industry during the past twenty-five years and I presume that your Association would like to hear what we have done and are doing in that branch of agriculture in which most, if not all of you, are specially interested.

I bring you greeting from "Our Lady of the Sunshine," incorrectly named "Our Lady of the Snows," by one of the minor poets. Canadians are interested in the welfare and prosperity of the United States. We are not, however, interested to such an extent that we should be willing to lose our identity and help to form "One government for all of North America," as was suggested by one of the speakers at a banquet preceding this session. The only terms on which Canada is likely to join hands with the United States is a fusion of all the English speaking people of the world, on some honorable and satisfactory basis for all parties. There was a time when Canadians were anxious for reciprocity on almost any terms. Now the offer of reciprocity must come from our American cousins. We have done all that any nation can honorably do in the matter.

However, we can and do have reciprocity of ideas. No men are more welcome at our dairy and agricultural meetings that ex-Governor Hoard, C. P. Goodrich, John Gould and other Americans. We are glad to get information and ideas from them. Many Canadians also go to American sources for helpful suggestions. This is as it should be.

In Canada we have in our Northwest Territories 238,000,000 acres, of which 135,000,000 acres are good farm land, and only 3,000,000 acres of these are at present occupied. We have abundance of room for your surplus population, and many of these are now flocking into Canada. In 1902, there was produced in our Northwest 102,500,000 bushels of grain, of which 50,000,000 bushels were wheat. Of this amount 42 per cent. of it grades No. 1 hard.

To come more particularly to the dairy industry, allow me to say that our exports of cheese for the present year are expected to reach a value of $30,000,000—or about five dollars for each head of our population. In addition, we shall probably export between five and six million dollars' worth of butter for each head of our population. All this is in addition to supplying our own people with cheese and butter.

A calculation has been made that it would require 150 trains of 40 cars each, which would be 37½ miles in length, to move our cheese to market this year.

Besides cheese and butter we export products closely allied to the dairy industry as follows: Cattle, $11,343,000; eggs, $1,500,000; bacon, $15,500,000; hams, $500,000; canned meat, $500,000. Our total exports for all products was in round numbers $214,500,000 for the fiscal year ending June, 1903.

ORIGIN AND GROWTH.

The dairy industry began in earnest in Canada about 1867. At that time we were importing cheese for home consumption. Creameries were unheard of. The butter was made in farm dairies and was of indifferent or poor quality. It was traded at the country store for dry goods, groceries, tobacco, horse pokes and other farm necessaries. Now we have over 3,000 cheese factories, and possibly 500 creameries. We still make a large amount of butter in farm dairies, but the quality is very much improved. Some of the chief factors which have contributed to the growth of Canadian dairying are:

1. Our people are sprung from the stock of the best dairy countries of the Old Land and have inherited a liking for dairying. This is essential for success. No man can succeed in the dairy business if he dislikes it—if he hates cows and the bother of looking after milk.

2. The development of the co-operative idea has promoted the growth of the industry. We have factories operated on the joint stock company plan and on the private plan. In the former, farmers own and manage the factory. Where this is well done it is the most successful form of operating the factory. In some cases, owing to jealousy, bad management, or some other cause the factory passes into the hands of private persons.

3. A third factor is the excellent work done by the dairymen's association, of which we have two in my own province, which corresponds to your State. I heard some one say something about a grant of $500 to the Indiana State Dairy Association by the State Legislature. Our state gives $8,000 to the associations, and the money is well expended in giving instruction to butter makers and milk-producers. It brings back manifold returns.

4. The system of syndicating or grouping factories by which 20 or 30 factories are placed in charge of a competent instructor, who visits each factory once a month, addresses meetings of patrons, or visits the farms giving help where needed, has been an excellent step in securing improved quality of product. This method of giving instruction is being rapidly extended—in fact the only limit is the number of suitable men who can be got to act as instructors.

5. The dairy schools, of which there are three in our province, with an attendance of about 300 annually, are doing an excellent work in supplementing the instruction given at the factory. At the dairy schools a thorough course in the theory and practice of dairying is given at a nominal cost, to the students who attend. These schools are well equipped with men and machinery.

6. The Farmers' Institute, dairy meetings, etc., are bringing practical information on dairy topics to the farmer's door. If the mountain will not come to Mahomet, then Mahomet will go to the mountain.

7. The publication of bulletins, reports, pamphlets, etc., relating to dairying, also tends to spread the good news of dairying among the people. All these agencies are being used for a proper development of the Canadian dairy industry.

8. In addition we may mention a wise and judicious federal and state governmental aid in securing improved transportation on railway and steamship lines, cold storage for butter at the creameries, inspection at Montreal, the chief export point for all Canada, and the securing of reliable market reports and requirements in Great Britain, thus helping to secure a good market for our goods when made.

9. In conclusion we may say that dairying has developed business ability and self reliance in the Canadian farmer to a larger extent than has any other branch of Canadian agriculture. It has also enabled him to have a better farm, better stock, better buildings and fences, and more comfort and happiness in the home. What dairying has done for the Canadian farmer it will do for the farmer of Indiana. There is yet plenty of room at the top in the production of dairy products. The world wants more and better dairy goods each year. Why should not the dairymen of Indiana have a part in the good times which are coming, and which never change to bad times for the successful dairy farmer?

Following Prof. Dean's address, Hahn's Musical Quartette sang, to the great delight of the Convention.

OUR LITTLE FRIENDS AND FOES.

PROF. M. B. THOMAS, OF WABASH COLLEGE.

(Abstract by the Secretary of an illustrated lecture.)

"Despise not the day of small things." This admonition, in substance, uttered more than two thousand years ago, as a rebuke to faithless observers, may well serve as a precept for us and a reminder of the potentiality in little things. How feeble is our attempt to measure the possibility of many little things by the ordinary methods of observation as applied to cause and effect.

Little things, too often, because of their apparent insignificance, left to their natural course, become the forerunners of great aggregations and the producers of effects apparently all out of proportion to their obvious cause. The whole is equal to the sum of its parts, be they ever so small. A dewdrop nestled in the bosom of a leaf is nothing to be viewed with apprehension, but what awful ruin and desolation are caused by terrible floods which are but the work of an aggregation of the minute drops of water.

The spark of electricity flashing between the two poles of an electrical machine gives but the faintest conception of the thousand volts in the mighty thunderbolt.

It is not my intention to dwell upon an enumeration of the multitudes of little things that cause pain, sorrow and pleasure, but to invite your attention to two phases of life and to certain of the smallest forms of the vegetable kingdom, commonly called microbes or bacteria. While probably not the lowest of the plants, they are unquestionably the smallest, but no group has more to do with the weal or woe of the human race than these. The results of their vital activities are not measured by their size or weight. Forts, war-ships and mines could not stop our admiral at Manilla, but a little colony of spirillum producing Asiatic cholera could quarantine him 11 days in any port in the civilized world where protection of life is regarded as important. The navies of all countries would unite in enforcing these regulations.

The borderland between the plant and animal kingdom is not sharply defined, and for the last fifty years students of these low forms have been at variance as to the exact position of certain individuals. Bacteria are simply one-celled plants containing a mass of protoplasm with varying characters and provided with a well-defined wall of cellulose.

It is hard to liken these small forms to any other members of the plant kingdom with which we are familiar. In their absence of color and manner of taking food they somewhat resemble the common bread mold. This is in marked contrast to the green plants that get so much food from the air.

There are but few forms of bacteria, and this fact has produced no little confusion in establishing the identity of certain individuals. These minute forms are recognized by what they do rather than by their appearance. However, like Dr. Jekyl and Mr. Hyde, bacteria may assume somewhat different forms under different conditions, in the one case becoming producers of loathsome diseases and in the other mere harmless parasites.

It is therefore certain that an absolute classification based on anatomical grounds is impossible, because of the smallness of the object and its variability during its life existence. Of the several hundred species of bacteria, there are but three or four forms; these in the main may be represented by an egg, a short lead pencil and a segment of a cork screw; again, they are ellipsoidal, rod-shaped and spiral. The rod-shape ones constitute the group of bacillus of which the forms producing typhoid fever and consumption may be taken as types. Those of egg-shape form are called micrococcus, and to this division belong the common pus-producing germ and others. The spiral form constitute the smallest group, and are called spirilla. To this class belong the one producing Asiatic cholera. The other groups are smaller and less important. Let us remember that "bacteria" includes all of the forms mentioned and is the general name for the whole group. In attempting to give an adequate idea of the size of these plants I am embarrassed by the mind being unaccustomed to appreciate very small fractions, or large numbers necessary to express exact measurements of these individuals. It would take a hundred and eighty million to cover the end of your lead pencil and one billion eight hundred to sheath the outside of your finger nail. Is there any wonder that danger lurks in the small things, when the bacilla causing each of the twenty-eight now recognized contagious diseases could be taken into the system through a hole much smaller than the central canal of the finest hair? That such wholesale contagion is not likely to occur, we shall see before the end of our paper. But what matters the minuteness of the elements when numbers compensate? Very minute marine animals form an aggregate formation for islands and perhaps continents.

Wherever any form of vegetable or animal life is capable of existing, there we are certain to find bacteria; in the air, earth, water, on every portion of the outside of the body, in the mouth, nasal passages, alimentary track and lungs. They readily enter most parts of the system through ordinary channels, and even penetrate the unbroken skin; contrary to the general belief, none of them are exhaled in normal breathing. In the air the number varies from the very high allowance in cities of 2,500 per quart to the very moderate proportion of 300 per quart in the country, while on the tops of high mountains the number is very small, and probably on snow-capped peaks the air is free from all germs.

It is not the number that is to be dreaded, but the kind. Comparatively few disease-producing forms originate in the air. In the water the condition is somewhat different, as this is the ordinary medium best suited for their development. Water flowing from deep springs is practically without bacteria until it reaches the surface. Unlike the air, water is the ordinary source and common carrier of many fatal germs. Bad water means bad health. A large number of bacteria may mean simply filthy water, and yet it may not contain the organisms of any specified disease. Our food is often teeming with these forms of germ life, and milk may contain as high as ten billion microbes per quart. Indeed, about half of this number is found in the good milk sold on our streets. Bacteria in great numbers are almost everywhere; they appear in the alimentary track of the child from four to eight hours after birth, and stay with it through its pilgrimage and are the last to leave it when dust returns to dust, ashes to ashes, the body to the earth which gave it. Let us not despair, for most bacteria are our friends and are necessary to our comfort. Indeed we are dependent upon them, for if it were not for the presence of certain forms in the alimentary track the process of digestion would be impossible. Animal life without bacteria is out of the question.

Each plant has a single cell and is provided with a tough cell wall that gives form and existence to the body. The plants increase in number, are multiplied by direct division. So rapidly does this progress go on that one bacillus growing in a suitable medium will in eight hours produce nearly seventeen million. The single bacillus of consumption taken into the respiratory track could, in a person of low vitality, nearly accomplish this, and in so-called quick consumption produces death in an incredibly short time. In the ordinary condition bacteria are comparatively easily killed, especially when growing in mediums adapted to their best development. Many forms have the power of forming spores; that is, the wall becomes thicker and contents darker and shiny. This form is able to withstand much more heat and exposure. Some forms will even endure 284 degrees of dry heat for three hours, or 212 degrees for sixteen hours; a few forms will withstand 275 degrees live steam for five minutes. Some will live in a corrosive sublimate solution, and some will live in a 5 per cent. carbolic acid solution for 40 days, and yet we often trust to the smell of the cork of the bottle containing this substance to drive dangerous bacteria from our dwellings.

Bacteria, like other forms of plants, vary much in their requirements. All require moisture for their growth. Many produce colors. In most cases development is retarded by sunlight, and it is God's best germicidal agent, and will in three and one-half hours accomplish what ordinary solutions of mercuric chloride, man's efficient destroyer, can bring about in three days. Why do we not, then, make use of sunlight in every part of our homes and schoolrooms? Let us open our windows and doors and destroy our worst foes, even at the expense of a little tapestry.

Bacteria grows best in a temperature of 60 to 90 degrees. The majority of bacteria produce no serious disturbance in the human body, and it seems almost certain that a few harmless forms are absolutely essential in certain organs to insure the proper performance of their normal functions. For the few that are harmful it may be said that their injurious effects are due to the production of poisonous and non-poisonous fluids. These are disseminated through the system very readily by the circulation of blood and reach every vital organ, working injury and dissolution. There is no other way of accounting for the very numerous and marked manifestations of such diseases as lockjaw, often producing death, when the introduction of this bacillus may be confined to a few plants on a rusty nail causing at the point of the breaking of the skin little local disturbances and often but a trifling inflammation. No invention of modern times can produce such distribution for the small bulk employed. The action in the body is like snake venom—quick, far reaching, deadly. The list of deadly and loathsome diseases caused by bacteria is long, and includes among many others, tuberculosis, leprosy, glanders, anthrax, diphtheria, typhoid fever and Asiatic cholera. Added to this are several that, while the bacillus is not known, there can be little question but that it exists as a producer of well known symptoms; such are smallpox, chickenpox, measles, mumps, whooping-cough and hydrophobia, Is there no help from these troubles? Must we simply stand aghast at the awful spectacle of forty per cent. of our population dying of these bacterial diseases? Legislation touches every part of our transportation system and the most extreme measures are taken to prevent disasters by sea and land. In most States pure-food laws regulate fatalities produced by the dangers of impure food. Crime of all sorts, punishable in a degree comparable to the extent with which it interferes with life, or even property of the offended; but what looseness characterizes the part our State or local authorities take in diminishing this 40 per cent. of deaths due to bacterial diseases. Death from these is not a visitation of Providence, but the actual consequence of dirt and filth on our own part or by our unfortunate associates. I am tempted to say, like another, "Rouse, ye slaves, resist the tyrant." But, alas! we all suffer and are silent. This is not indicative of patience, but ignorance, and that of the most criminal sort.

We owe to the untiring zeal of a few scientists the possibility of relief we now enjoy, and I am confident that as the result of an educated public sentiment in this direction and by the use of remedial agents placed in our hands we can say with Frankland that the time will come when in our large cities men will no longer die of diphtheria, scarlet fever and smallpox, than they now perish in these places from the teeth of wolves and the venom of snakes, which civilization has driven back.

Vaccination, discovered by Dr. E. Jenner in 1796, yet not by him understood, is now universally practiced. The secret of vaccination, the operation practiced for prevention of smallpox, means the introduction into the system of the bacillus of this disease, after it has first been weakened or robbed of its destroying power by passing through an ox, which is immune to smallpox. This bacillus in the system forms from its action on the blood antitoxine that persists in the body from 7 to 14 years and forms an antidote for any future toxine that might be produced by the smallpox bacillus taken into the system through the ordinary channels of infection.

It is a matter of common observation that a large number of contagious diseases, like scarlet fever, chickenpox, etc., are not liable to recur in the same individual. This is because of the presence of specific antitoxine that remains as an antidote for the toxine that may be introduced in the system in future years. Its protection varies with each disease and the condition of the patient. Yet in most epidemics it is sufficient to prevent a recurrence at least during the same siege. Some plant diseases are produced by microbes—pear blight, potato rot, olive rot, carnation blight, sugar beet disease, cucumber wilt and the sorghum blight are among the troubles encountered in this direction.

There is a brighter side to this subject. Not all bacteria are harmful or work to our woe, a large number are most useful and some are indispensable to our daily existence. Among the most important are the so-called putrifying forms accompanying these processes of decomposition and disintegration with which we are so familiar. Were it not for them all organized matter, that ceased to remain alive, would, practically unchanged, cumber our earth. The forests would be impassable from the accumulated vegetation of ages, and our paths and highways would be strewn with the wrecks of bygone plants and animals, never changing, and only remaining to remind their survivors of the inhabitants of other days. The work of the putrifying bacteria is to make this useless mass available by converting it into usable products resulting from decomposition, fertilizing the soil, and again appearing in plants that contribute to our comfort and pleasures.

Fermentation forms are doubtless next in importance, and to them we owe the possibilities of making wine, beer, sauerkraut, etc. Some are concerned in the production of indigo, from the indigo plant. Others are necessary for the proper ripening of teas and tobacco; still others separate flax and hemp from the plants producing them, and a patent covering this latter operation has been taken out in this country and bacteria are made to minister to our daily needs. The process of steeping skins before tanning is to remove the hair by the action of fermenting bacteria. Hay and silage are ripened as a result of the action of these forms of life.

Other bacteria produce acids that cause the souring of milk, the ripening of cream, the curing of cheese and butter. None of these processes could be carried on without such agents, and whenever any deleterious changes take place in any of these articles it is because of the insufficient growth of the proper bacillus or the too luxuriant development of a foreign one. Perfectly reliable results could always be obtained if the right bacteria were used, and in those localities now famous for the high quality of their dairy products the foreign bacteria are killed before they become disturbing factors, and the proper ones introduced from a convenient source.

Some bacterial diseases of insects and animals are made to contribute to our profit. In Greece and Hungary a few years ago the fields were overrun with mice and the loss to the crops was something enormous. The introduction of a bacterial disease among the mice has caused their almost complete disappearance. This same method has afforded some relief from the cabbage butterfly, the boll worm and the chinch bug.

Last, but not least, we owe to certain nitrogen-forming bacteria a large share of the credit for maintaining the fertility of our land. Without these forms the soil would in time become exhausted. The cultivation of clover, on the roots of which plant tubercles containing these bacteria are most abundant, is simply to enable these microbes to enrich the soil with nitrogen so essential to its fertility. And so I might continue the enumeration of the good things we enjoy as a direct result of the action of bacteria, but time will not permit. One other suggestion and I am done. This last interesting phase of the problem is what our accumulated knowledge of the life and habits of these plants has done for us, and it is but just to scientific men that I say they have become masters, not only of the fowls of the air and beasts of the field, but also of the smallest of God's creatures. Where formerly bacteria wrought such havoc in septic poison, they now by proper precautions are kept out. Wounds heal without suppuration, and better than this, operations that ten years ago were not thought of are now, thanks to our control of these plants, matters of everyday occurrence. The history of antiseptic surgery, since its inception by Lister in 1864, reads like a fairy tale. This great surgeon profited by his own discoveries to the extent that his mortality in surgery cases for a period of five years after his discovery was 36 per cent., while before this time it was 45 per cent. Think of this. In England the mortality from compound fractures before antiseptic surgery was 40 per cent., while now a single death under these circumstances is almost unknown. In France the hospital mortality for surgical cases was 52.5 per cent., while with antiseptic methods it is now but 11 per cent. In some of our cities the change has been as great, i. e., from 40 per cent to 4 per cent. in Philadelphia. A New York surgeon has operated on 516 surgical cases without a single loss from bacterial poisoning. In England's army, where the best can be secured, the change has been from a mortality of 69 to 16 per thousand.

In specific diseases like diphtheria, where antitoxine is used, the mortality has changed from 39.7 per cent to 11.8 per cent. in a representative city. Some report results even more flattering. This diphtheria antitoxine is made by passing the diphtheriatic bacillus through the horse, which is immune to this disease.

During a recent cholera epidemic in Calcutta one half of the population of a certain district were inoculated with cholera antitoxine and the other half were not disturbed. The death rate decreased by 70 per cent. as the result of the inoculation. The prize of $100 recently given by the Mexican government to the young Italian physician was for the discovery of serum that has rescued from yellow fever 85 per cent. of all the unfortunate victims of this disease treated in Vera Cruz and Mexico. Had this discovery been made a half century earlier these sad scenes of the victims of black death in our own country in 1849, and now commemorated by a monument, would not have existed to remind us of the awful horrors of the results of the work of the little plant now before us.

The outcome of the labors of Louis Pasteur, the father of bacteriology, with these plants saved to France, his native country, an amount equal to the whole loss to her from the Franco-Prussian war. This prophet had honor in his own country, and a magnificent institute which bears his name and has become his tomb stands as a tribute of a grateful people to the ameliorator of their misery; and throughout the length and breadth of all lands wherever inoculation rescues any of God's creatures from death by bacteria there is a monument erected to Pasteur's name.

Despise not the small things, and remember that upon each of us as intelligent people rests a great responsibility.

The angel of mercy, as God's messenger, shields our neglected and unsuspecting children from harm, so are we appointed to be our less fortunate brother's keeper, and as the moral and civil laws protect his life and property let us fulfill our mission and demand that improper sanitation in our dwellings and on our streets no longer jeopardize his health and interests. We should insist upon the careful study of the life and characteristics of our greatest foes, be they ever so little, and as the result of this in time contagious diseases will be driven from our country.

In precept and practice let us pay proper deference to this group of small plants and aim to make the relief of the world from the tortures of the plagues of the infinitely little our special business.

MORNING SESSION.

Friday, December 11, 1903, 10 a. m.

CREAM RIPENING.

C. F. HOSTETTER, PLYMOUTH.

Speaking generally, the ripening of cream is all of the treatment it receives from the time the milk is drawn until it is churned, while specifically and commonly it is the particular treatment given the cream after separation to putting it in the churn. What is ripening cream? We find that it is the souring of cream. Then the question that comes up before dairyman and buttermaker is what causes the cream to sour or ripen? Then if we find what causes the cream to sour we can find a remedy to keep it from over ripening, or to help to ripen it quicker, or, in other words, have it under our control to some extent.

When cream or milk sours, the milk sugar is changed by lactic acid producing germs or some form of bacteria. Bacteria are minute forms of plant life; they grow rapidly at a temperature of from 60 to 90 degrees;

they require food and moisture like higher forms of plant life, they are prevented from growing by cold; are killed by moist heat, most of them by a temperature of boiling water. They may remain inactive for a long time, then grow rapidly when conditions again become favorable. They grow or multiply usually by divisions, which may happen every twenty minutes or may require several hours. In the process of their growth, they cause some change in the material in which they are growing. It may be a useful or a harmful one; the character of the change will be largely determined by the kind of bacteria present.

The bacteriologist finds that there are several forms of lactic acid producing bacteria; also that some forms of bacteria produce acid without thickening or curdling; others produce the reverse. Again, some produce gas; while slimy or ropy, red (or what is sometimes called bloody) milk is produced by bacterial growth in milk.

An understanding of these principles should materially assist in the ripening of cream and getting a good quality of butter.

The texture of the butter is very largely influenced by the changes of temperature that are brought about during the ripening process. It seems to be essential to the production of a firm, solid texture in the butter that the cream, at some time during the ripening process, should be subjected to a constant low temperature for several hours. Another point which influences the texture of the butter depends upon the rapidity with which various changes of temperature are made and the extremes of temperature that are used. That butter will have the best texture which has seen the fewest possible changes of temperature between the time the milk is drawn from the cow and the time it is churned, and in which also all the necessary changes of temperature have been made most gradually. Not only will such butter have the best texture at low temperature, but it will stand the effects of high temperature better.

In separating the cream I think we should not have any higher temperature than is necessary to do good skimming and have the cream in the proper shape to handle to the best advantage. In the winter we may have to have the milk at a little higher temperature than is practically necessary to do good skimming, in order to get it in the proper shape to ripen, while at other times of the season we may have to skim a little cooler than is necessary, for by doing so we could save a lot of time and work, for time and labor are quite an object in a creamery where one has from four to six churnings a day to make, and only two men to do the work. I find that it is as easy to get the temperature at the separator as it is after the cream is in the vat. Of course, we can not always do this, but as a general rule we can. What temperature should the cream be to ripen? That depends on the condition of the cream and the weather and surrounding influences, but we should get it high enough to start with so we can go down gradually to where we want to hold it to churn. I find that about 72 or 75 degrees will be about the right temperature to have the cream start to ripen, if it is about 16cc acidity, and hold it at that till it has about 27cc, and then cool down gradually to where you want it to churn. But in the summer the milk is generally warm enough, and as a general rule is tainted more or less, and the first thing we have to look after is to get it cooled down, so that it does not get too sour, especially where you have several skimming stations and the cream does not get in till about five o'clock. Your cream, as a general rule, has developed enough acidity that you would not need any starter. I think a starter is a good thing if you can get your cream in fair shape and then use a good starter. I can not see why one could not get a more uniform quality and better flavored butter than where one does not use a starter.

What per cent. of cream is the best to get a good quality of butter? That depends a great deal on the condition you have for getting the cream at the factory. I find that a thirty of thirty-five per cent. cream is none too heavy, especially in the summer; the process of ripening is slower, consequently there is less danger of developing too much acid in the cream and it will ripen better, churn more readily and produce a better flavored butter.

A cream containing but twenty or twenty-five per cent. fat often brings very unsatisfactory results; it is liable to become over ripe, thus injuring the flavor of the butter. There is less danger of affecting the quality of the butter from running a light cream in the winter than there is in the summer, the process of ripening is slower, consequently there is less danger of developing too much acid in the cream.

This is perhaps the most important factor in buttermaking, and the one most difficult to explain, as no method of procedure can be recommended that will be found applicable to all conditions. In ripening cream properly, much depends upon the experience and judgment of the buttermaker. Methods that may bring the best results obtainable at one time may be altogether unsatisfactory at another; therefore an understanding of all conditions present is necessary, before any particular system of ripening can be recommended. Here is where the best qualifications of the buttermaker are brought into requisition. A failure at this point in buttermaking can never be entirely remedied; the influence of impure milk, improper cooling, etc., may be at least partially corrected; but an error in ripening the cream is sure to manifest itself in the impaired quality of the butter produced. The chief factor in good butter is the flavor. Other defects may be, to a certain extent, condoned or passed by, but a bad flavor never. It is by the proper ripening of cream more than anything else that good flavor is obtained; to be sure other factors exert an influence, but the flavor of butter, whether good or bad, is largely controlled by the acidity of the cream at the time of churning. Acid, like charity, covers a multitude of sins. Therefore many of the defects resulting from impure milk, quality and kind of feed, stage of lactation, etc., can be covered up, or, in other words, neutralized, oy the system practiced in ripening and the degree of acid developed.

Let us then draw a brief comparison between old and new methods. The prime factor is thought. Thought must precede action in any pursuit, if success would be attained. Thought, then, may be justly considered the first distinguishing feature between past and present methods of cream ripening. The old-time buttermaker did not think towards expressions; the modern buttermaker does. The one performed his work without regard to conflicting conditions; the other regulates every detail in accordance with scientific truth. The old-time buttermaker knew nothing of bacterial life, or its influence upon milk or cream; his cream was gathered from milk infected with various germs, and set at various temperatures. It was held until a prescribed quantity had been collected before it was churned, without regard to the stage of development reached. The modern buttermaker does not do this. He has learned the secret of germ infection, and the results attending it. This knowledge has broadened his conceptions and brought to light other facts. It has taught him the importance of keeping cream pure and free from contamination; but it seems as though some of our creamery managers have not learned that important fact yet, for they go around in the factory smoking a cigar as though it were some old smoking-room and not a creamery; and they will come in the factory and tell you where to put this cream and that cream, because it is sweet or sour. It is not a difficult matter to determine whether cream is sweet or sour. Anybody with the sense of taste unimpaired can detect sour cream, but there are other and far more objectionable conditions that are not so easily detected, and for that reason I say the buttermaker should have the privilege of putting the cream where it belongs.

The influence of temperature on germ development is also understood by him and so regulated as to bring satisfactory results. The finer points of grain, flavor, etc., were quite unknown to the buttermaker of the past. His modern successor, however, realizes that these are prime qualities, consequently his aim is to regulate conditions so as to insure their presence in the butter he produces. To do this he must possess a knowledge of the many details leading up to the desired result, and just how to rgulate and apply them. The buttermaker of long ago was an unskilled laborer. He brought into exercise no higher talent in handling milk or cream and transforming the same into butter than he did in digging a post hole. What are today recognized as the more important factors entering into the production of high grade butter were wholly unknown to him; and the results of his achievements usually correspond with his want of knowledge. All this has changed, however. The buttermaker of today must be a skilled artisan, able to bring an expert judgment to bear upon every detail of his work. He must not only know a certain condition exists, but he should be able to tell why it exists, and know how to regulate and control it. This superior knowledge is not gained in a day or even in a year, but is the result of diligent study and more or less extended experience.

The successful buttermaker of today can neither jump at conclusions nor guess at results. The methods he employs in his work must be founded on previously ascertained facts, and each successive step made to conform to conditions fully recognized and understood.

DISCUSSION.

Mr. ——: What kind of starter do you use?

Mr. Hostetter: I have not been using any starter lately. I used the Hansen commercial starter. I use a gallon of sterilized milk, skim milk, and put in 17cc starter.

Mr. Hardin: At what temperature do you set your milk for ripening?

Mr. Hostetter: It is owing to how the cream comes in. If it is bad, you should get the temperature as low as possible, and if the cream is not sour when it comes in you can have the temperature a little higher; normal cream 72 to 75 degrees.

Mr. Hardin: Then do you test by the acid test, or by taste or smell?

Mr. Hostetter: I like the acid test the best. I think it is more accurate than the taste, for a man's taste is not always the same. Your eye is pretty nearly always the same.

Mr. Hardin: When milk comes in a normal condition, and you want to hold it at 75 degrees to ripen it, how do you hold it there when the temperature is 100 or 110 degrees outdoors? What is your process?

Mr. Hostetter: We have vats with a jacket around the outside, and water is there, and ice, and thus it is kept cool.

Mr. Hardin: You use ice and cold water?

Mr. Hostetter: Yes.

Mr. Taylor: Is ice necessary in hot weather to make good butter?

Mr. Hostetter: Certainly. You can not make good butter without ice. If not, the cream will get too sour.

Mr. Hardin: At what temperature should cream be churned?

Mr. Hostetter: It depends a good deal on the condition of the weather.

Mr. Hardin: What is your range?

Mr. Hostetter: I get it from 50 to 60 degrees.

Mr. Hardin: Is 62 degrees too high?

Mr. Hostetter: I would not advise anybody to churn that high.

Mr. Hardin: Does not cream have to be pretty rich to churn at a lower temperature?

Mr. Hostetter: No; it takes a little longer, but it will churn all right.

Mr. Hardin: I often have trouble with people inquiring why the butter does not come, and I have always told them to see that they have a temperature of 62 degrees. I know that used to be the temperature for ordinary cream, but I know if cream is very rich and heavy you can churn it down to 52 degrees, though it takes considerable time to do it.

COMMERCIAL STARTERS—THEIR VALUE AND PREPARATION.

H. N. SLATER, PURDUE UNIVERSITY, LAFAYETTE.

We must all admit that this is a subject most of us are much in the dark about. I feel, however, that we are gradually getting hold of it. Many of the butter makers are at least making an effort to read up, while those who are regularly making butter with the use of a starter in their daily practice have found it profitable, while there are some who only deem it necessary to use a starter when they are preparing a convention tub. My advice to these men, who only deem it necessary to make good butter when they are contesting for a prize, is to let the starter alone, as the subject is too deep for an occasional trial. I want to make very emphatic the necessity of using a starter in our everyday practice. My experience in traveling from creamery to creamery has taught me that the starter is the most neglected of any part of the butter makers' work, and in my opinion requires the most careful attention given it.

It is my purpose to deal largely with the pure culture or commercial starter. It has been stated that I am emphatically opposed to a home-made starter, which I will not deny until I have been convinced that from a bacterial standpoint the home-made starter contains the proper lactic acid bacteria, and no other, which thus far has not been excelled as the buttermakers' friend.

The following are the methods used in the Dairy Department of Purdue University in preparing commercial starters. In selecting milk for the preparation of starters we find it difficult to secure good quality. It is our practice to heat the milk to about 90, at which temperature we can detect undesirable odors which would not be found in the cold milk. Having found satisfactory milk, it is pasteurized at a temperature of 200 degrees, held at least twenty minutes at this temperature, then cooled down to 85 or 90 and the pure culture added, keeping it at this temperature until coagulated. With the ordinary small sized bottle of pure culture we use a pint of pasteurized milk if we want it ready in twenty-four hours. If wanted sooner, use less milk, or if to be held forty-eight hours use a quart of milk.

An important point is stopping the souring process at the proper stage. I have found it best to reset, or use when acidity has reached six-tenths of one per cent. It is a bad practice to let your starter get too much acidity. Better be used with not enough than too much, because as soon as the culture begins to coagulate the starter deteriorates. After you have carried the pure culture to the point of coagulation it should be reset, or used in the main starter, as we term it. This should be set at a temperature of 65. The amount used should be about one-half to two per cent. of mother starter, depending upon the strength of the culture, as some work more rapidly than others. The per cent. to be used in the cream depends entirely on conditions. Pasteurized cream should have one-third more starter than raw cream, the amount depends on whether you can hold your cream at an even temperature, whether the cream is high or low in per cent. of fat, and many other conditions which are too numerous to mention, each one must study for himself. Generally speaking, with unpasteurized cream, I would use ten to fifteen per cent., depending altogether on the time before churning.

The first thing to do in handling starter is that every vessel the culture comes in contact with must be thoroughly sterilized. Metal vessels are preferable, as they can be kept more thoroughly steamed without breaking. Second, the starter must be kept at an even temperature. Third, we must educate our tastes so as to be capable of judging whether or not the starter is of a quality that will improve our butter. A bad starter will do as much harm as a good one will good.

THE MAKING OF PASTEURIZED BUTTER.

PROF. H. H. DEAN, ONTARIO AGRICULTURAL COLLEGE.

I feel more at home this morning since being received into the membership of your Association. "I was a stranger and you took me in."

In the year 1895 a visit to the British markets and also to Denmark convinced me that pasteurization and the use of pure cultures or "starters" was the secret of success in Danish buttermaking. There was nothing in their cows, feed, stables, creameries or men which would give them any advantag over Canadian or American buttermakers. Pasteurization told the story. On my return we adopted pasteurization in the Dairy Department of the Ontario Agricultural College, and have followed it ever since, with a marked improvement in the quality of our butter.

In one of your creamery journals recently the following statement appeared: "Slowly but surely pasteurization is coming to the front, when the two highest average scores in the National Educational tests are secured for butter made from pasteurized cream." The system is also being gradually introduced into Canadian creameries, and we estimate that it will add from one-half to one cent per pound to the value of our butter, when once established.

By pasteurization for buttermaking we understand the heating of milk or cream to a temperature between 140 degrees F. and 185 or even 200 degrees F., and afterwards cooling the cream to a ripening temperature of about 65 degrees F. This may be done in several ways. An expensive plant is not essential. Pasteurization may be done with a very simple apparatus—a shot-gun can, hot water for heating, cold water for cooling, a tin stirrer, and a man or woman to stir the cream and note the temperature, is all that is needed. For large quantities of milk or cream a continuous pasteurizer driven with a belt has been most satisfactory for us. We have also had slightly better results from pasteurizing milk than from heating the cream. A temperature of 185 degrees F. we have found most suitable.

The chief advantages of pasteurization are:

1. It destroys most of the germ life in the milk or cream. It prepares a clean seed-bed for the germs which produce fine flavor in butter and which are introduced by using a culture or starter. This may be compared to a farmer who cleans his field of weeds before sowing seed for a grain crop, otherwise he can not expect to obtain a good crop.

Temperature has a marked effect on germ life. In experiments conducted by us we found that milk which contained from one-quarter of a million to nearly fifty-two million germs per cubic centimetre (16 drops) of milk before pasteurization had the following average germs per c.c. (cubic centimetre) after heating to the temperatures given in a continuous pasteurizer:

Temperature.	*Av. No. germs per c. c.*
140 degrees F.	631,046
160 degrees F.	12,848
185 degrees F.	81
195 degrees F.	40

Not all the germs are killed by heating, but most of them are destroyed at 185 degrees.

2. Stable and feed flavors are eliminated from milk by the heating. No matter how careful we may be there is more or less taint from the stable in winter. As feed flavors are due to volatile oils, these have an opportunity to pass off in the heating process. Pasteurization is not to be considered an excuse for careless feeding of cows or handling of milk, but it is an aid to the buttermaker, whether in the creamery or in the farm dairy, who does not have perfect milk or cream to make into butter.

3. It places the control of the cream ripening in the hands of the buttermaker. This is the most difficult part of buttermaking. If the milk or cream be delivered sour or off in flavor, it is not possible to make fine butter out of it. First-class butter can not be made from second-class cream.

4. Pasteurization enables the buttermaker to produce an improved quality of butter from inferior milk, but it does not improve butter made from perfect milk.

5. Other advantages are, more uniform quality and better keeping quality in the butter, less loss of fat in the skim milk by pasteurizing before separating, and a better quality of skim milk for the patrons. Where pasteurization at 185 degrees is followed there is no danger of spreading tuberculosis among all the herds from one infected herd, as 185 degrees will kill the germs causing this disease.

Disadvantages of pasteurization:

1. Extra cost for machinery, fuel, labor, etc., which will probably amount to one-eighth to one-fourth a cent per pound of butter. Some claim that it can be done for one-tenth of a cent per pound, but this is probably too low.

2. Overripe (more than .2 per cent. acid) milk or cream is apt to coagulate when heated and give trouble. Extra care is needed in receiving the milk, and sour milk should be sent home.

3. Froth sometimes causes considerable annoyance, especially at the high temperature.

4. The butter tends to lack flavor for local trade, and there is some danger of cooked flavor at the high temperatures.

5. More skilful buttermakers are needed, and especially men who know how to prepare and use good cultures. This is really not a disadvantage, as it would tend to drive the poor men out of the business and the skillful buttermakers would command higher wages.

Briefly, the points to observe in the making of pasteurized butter are: Be careful not to take in any milk containing over two-tenths of 1 per cent. acid; use a pasteurizer large enough to heat all the milk required for the separator or separators, that there may be no delay in the separating; deliver the milk directly to the machine from the pasteurizer; use plenty of oil on the upper bearing of the separator, and run it slightly more loose than when skimming at ordinary temperatures; cool the cream to a ripening temperature of about 65 degrees as soon as it comes from the separator, or if pasteurizing the cream only, as soon as it leaves the heater; use 10 to 15 per cent. of a clean flavored culture in the sweet cream after cooling; ripen to about .4 per cent. of acid, then cool to churning temperature; ripen the cream to about .5 to .6 per cent. of acid for churning; churn cream testing 30 to 35 per cent. fat at about 50 to 52 degrees, salt, work and prepare for market in the usual way.

The essentials for the successful making of pasteurized butter are, proper facilities for heating and cooling the cream, the use of a pure culture, and a buttermaker who has the necessary skill and brains to watch details and observe the various changes needed to make fine butter.

The Committee on Resolutions makes the following report, which is unanimously adopted:

Resolved, That the thanks of this Association be extended to the Secretary of Agriculture, Wilson, in appreciation of his work for the dairy interests of the country, through the Dairy Division of the Department of Agriculture.

Resolved, That this Association express its appreciation of the Department of Agriculture in assigning W. D. Collier for attendance at our meeting, and that we express to Mr. Collier our appreciation of his services in scoring the butter.

Resolved, That we congratulate Commissioner of Internal Revenue Yerkes, and Hon. Leslie M. Shaw, Secretary of the Treasury, upon the impartial and satisfactory manner in which the revenue laws concerning imitation products have been enforced, and hereby express our confidence in them, and our appreciation of their honest and fearless administration of the laws which are of such great importance to the protection of the dairy interests.

Resolved, That the thanks of this Association be extended to the City of Plymouth for its hospitality, and the encouragement its citizens have given this Association, and especially to the mayor for his warm words of welcome and the Schlosser Brothers for their untiring efforts in making this meeting a success.

Resolved, That the thanks of this Association be extended to the Bremen Orchestra, to the Mozart Club, and to the Hahns Musical College Quartet, for their excellent music.

Resolved, That the thanks of this Association be extended to the different supply firms for their contributions to the program, and the interest their representatives have manifested in the meeting and its success.

Resolved, That in view of the progress being made in other States, it is the sense of this Association that definite requests be made of the forthcoming legislature, to provide for this work, and that an active campaign shall be begun, having for its object the securing of increased funds from the State for educational work among its dairy interests.

Resolved, That the thanks of the members of this Association be extended to our worthy officers who have so energetically labored to make this meeting a success.

Resolved, That we express our appreciation to the President and Trustees of Purdue University, for the encouragement they are giving to the dairy interests of the State, and that the dairymen of the State lend their hearty support to Prof. Van Norman for his work in the dairy school of Purdue University, and that we recommend that the dairymen and farmers of the State encourage young people to avail themselves of the advantages given by this institution.

Resolved, That this Association express its most hearty appreciation of the work being carried on, and already accomplished by the National Dairy Union, and that it is the sense of this Association that our members should do everything in their power to assist and encourage this work, because it is of vital importance to the prosperity of the dairy interests.

The following report of the Committee on Nominations is received, and officers elected:

We, the Committee on Nominations, present the following names as officers for the ensuing year:

President, D. B. Johnson, Mooresville.
Vice-President, J. B. Calvin, Kewanna.
Secretary-Treasurer, H. E. Van Norman, Lafayette.
With the following to constitute the Executive Committee:
Samuel Schlosser, Plymouth.
Mrs. M. G. Schenck, Lebanon.
Officers elected as nominated.

TREASURER'S REPORT.

Lafayette, Ind., December 9, 1903.

To the Officers and Members of Indiana State Dairy Associaton:

I beg leave to submit the following report as Treasurer:

RECEIPTS.

Balance on hand last report		$131 94
Sale of butter and cheese exhibits		44 91
Contribution to last year's premium fund		65 00
Contribution to this year's premium fund		53 00
Legislative appropriation		500 00
Life membership Henry Schlosser	$10 00	
Fifty-five annual memberships	55 00	
		65 00
Mileage books sold		30 00
Total		$889 85

DISBURSEMENTS.

Premiums paid last convention	$96 98
For speaker at last convention	203 30
Services of Secretary	50 00
Traveling expenses of officers	17 92
Postage	22 00
Express and cartage	7 55
Printing programs, letterheads and paper and score cards	44 95
Dairy meeting at Bremen, speaker's expenses	10 12
Dairy meeting at Vevay, speaker's expenses	20 46
Engraving prize cups	3 55
Printing Miss Parsons's essays, 1,000	4 00
Prize cups	37 80
Mileage book	30 00
Convention piano	5 00
Badges for convention	7 60
Clerical help, mailing circulars, programs and compiling list of dairymen	16 98
Photo, telephone and telegrams	3 87
Total	$582 08
Receipts	$889 85
Disbursements	582 08
Cash balance on hand	$307 77

Received for use of Legislative Committee:

From Boyd and Drischel	$5 00
From Silas Holloway	5 00
From Indianapolis Creamery	5 00
From Liberty Creamery	5 00
From Schlosser Bros., Bremen	5 00
From Schlosser Bros., Hanna	5 00
From Schlosser Bros., Plymouth	5 00
Total	$35 00

Expended:

Rent of typewriter, 5 weeks	$5 00
Telephone to Indianapolis	40
Secretary to Indianapolis	4 85
Total	$10 25
Balance on hand	24 75
Total	$35 00

Respectfully submitted,
H. E. VAN NORMAN, Sec.-Treas.

We have carefully checked over the foregoing statement and believe it to be correct.

A. H. COMPTON.
HOMER FIDLER.

December 11, 1903.

CREAMERY BUTTER ENTRIES AND SCORES, PLYMOUTH, DEC. 10, 11, 1903.

SCORED BY W. D. COLLYER, CHICAGO.

Silver cup to highest Indiana score, and premium distributed pro rata to all scoring 90 and over.

No.	Name.	Postoffice.	Flavor.	Body.	Color.	Salt.	Package.	Total.
1	J. H. Staubli	Orland 30, 2, 10, 17, ..	39	25	15	10	5	94
2	John Enger	Osceola 26, 3, 10, 18, 22	33	20	15	10	5	80
3	Frank Lennick	Hanna 31, 2, 1, 18, 22	35	23½	13½	10	5	87
4	Herbert Newby	Spiceland 26, 3, 14, 17, 23	42	25	15	10	5	97
5	W. S. Hastings	Sullivan 27, 3, 14, 18, 24	34	24½	14	10	5	87½
6	C W. Lisman	Carlisle 28, 5, 14, 17, 23	32	25	15	10	5	87
7	C. F. Hostetter.	Plymouth 28, 3, .. 18, 21	34	24	15	10	5	88
8	Poplar Ridge Creamery	Poplar Ridge, N. Y. 29, 2, 10, 17, 22	36	25	14	10	5	90
9	Scott Wylie	Lima 30, 3, 10, 17, 22	35	25	14	10	5	89
10	C. E. Holderman	Bremen 26, 3, 10, 18, 21	39	25	15	10	5	94
11	E. L. Martin	New Carlisle 28, 2, 10, 18, 22	42½	25	15	10	5	94½
12	A. V Holloway	North Manchester 26, 3, 15, 17, 22	36½	25	15	10	5	91½
13	C. Wildman	Deedsville 1, 10, 17, 23	38½	24	14	10	5	91½
14	Clifford & Penrod	Kewanna 27, 3, 10, 17, 21	40½	25	15	10	5	95½

DAIRY BUTTER.

No.	Name.	Postoffice.	Flavor.	Body.	Color.	Salt.	Package.	Total.
28	E. F. Hanning	Evansville 4, 12, 17, ..	34	25	15	10	5	89
30	David Heckard	Logansport 4, 10, ...	30	22	15	10	5	82
31	Isaac McDaniel	Brownsburg .. 9, 17, ..	32	25	15	10	5	87
32	Slate Kline	Logansport 3, 10, 17, ..	32	25	15	10	5	87
33	A. C. Heilman	Evansville .. 12, 17, ..	33	25	15	10	5	88
34	Mrs. Hiram Clark	Owensville 3, 9, 17, ..	31	23	14	10	5	83
35	John Hirtzel	Crown Point .. 10, 17, ..	36	25	15	10	5	91
36	John Rentejohler	Huntingsburg	37	24½	14½	10	5	91
37	G. [illegible] Graverson	Bremen .. .. 17, ..	34	25	15	9	5	88
38	Mrs Sam Martin	Lafayette 2, 10, 17. ..	31½	24½	15	10	5	86
39	Brenson Doud	Chili	37½	25	14¾	10	5	92¼
40	Mrs. M. J. Rippy	Syracuse .. 10, 17,	30	25	15	10	5	85
41	I. W. Dunlap	Bremen .. 10, ...	32	23	14	10	5	84
42	Mrs. Chas. Lamont	Joppa	35	25	15	10	5	90

CHEESE.

No.	NAME.	POSTOFFICE.	Flavor.	Body	Color.	Salt.	Package.	Total.
Standard			40	15	15	20	10	100
55	G. P. Swan	New Washington 5, 16	30	10	14	15	9½	78½
56	Boyd & Drischel	Cambridge City 2, 16	36	15	15	20	10	90
57	O A. Kielsmier	Hika 2, 19	38	14	15	18	9½	94½
58	Kingsbury Butter and Cheese Co	Kingsbury 3, 16	30	10	15	15	8	78
59	....	....	35	12	14	16	9	86

1. Genesse Salt.
2. Worcester Salt.
3. Diamond Crystal.
4. Colonial.
5. Cadillac.
6. Garland.
9. Empire.
10. Dè Laval.
12. Sharpless Tubular.
12. United States.
13. Danish Weston.
14. Sharpless Russian.
15. Jumbo.
16. Hansens.
17. Wells Richardson.
18. Alderny.
19. Ellersons.
21. Simplex.
22. Disbrow.
23. Box.
24. Dairy Queen.
26. Douglass.
27. Skim Milk.
28. Hansen.
29. Kieth.
30. None.
31. Commercial.

APPENDIX.

BUTTER ENTRIES, AND SCORES, INDIANA STATE FAIR, SEPTEMBER, 1903.

TWENTY-POUND TUB.

Name.	*Postoffice.*	*Score.*
Herbert Newby	Spiceland	94¾
Perry L. Johnson	Prairie Creek	94
Silas Holloway	North Manchester	92¼
Schlosser Brothers	Plymouth	89¼

TEN-POUND PACKAGE DAIRY BUTTER.

Mrs. Peter Root	Lawrence	91½
Mrs. Jerome Dunlap	LaFayette	87¾
Mrs. Mary Smith	Marshall	80

FIVE POUNDS DAIRY PRINTS.

Mrs. E. T. Drake	Edinburg	95
Frank Gregory	Pendleton	94
Mrs. Peter Raab	Lawrence	91¾
Mrs. Charles Lamont	Mooresville	91½
A. W. Porter	Bridgeport	88¼

THIRTY-POUND FULL CREAM CHEESE.

Boyd and Drischel	Cambridge City	96
A. E. Helmer	Evans Mills, N. Y	93
W. L. McCain	Durbin	86¼

YOUNG AMERICA CHEESE.

Boyd and Drischel	Cambridge City	95½
A. E. Helmer	Evans Mills, N. Y	93
W. L. McCain	Durbin	86½

FANCY BUTTER.

Jennie Drake	Gallaudet	Prize.
Mrs. Jerome Dunlap	LaFayette	

NATIONAL OLEOMARGARINE LAWS.

[Public—No. 110.]

An act to make oleomargarine and other imitation dairy products subject to the laws of any State or Territory or the District of Columbia into which they are transported, and to change the tax on oleomargarine, and to impose a tax, provide for the inspection, and regulate the manufacture and sale of certain dairy products, and to amend an Act entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles known as oleomargarine, butterine, imitation, process, renovated, or adulterated butter, or imitation cheese, or any substance in the semblance of butter or cheese not the usual product of the dairy and not made exclusively of pure and unadulterated milk or cream, transported into any State or Territory or the District of Columbia, and remaining therein for use, consumption, sale, or storage therein, shall, upon the arrival within the limits of such State or Territory or the District of Columbia, be subject to the operation and effect of the laws of such State or Territory or the District of Columbia, enacted in the exercise of its police powers to the same extent and in the same manner as though such articles or substances had been produced in such State or Territory or the District of Columbia, and shall not be exempt therefrom by reason of being introduced therein in original packages or otherwise.

Sec. 2. That the first clause of section three of an Act entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six, be amended by adding thereto after the word "oleomargarine," at the end of said clause, the following words:

"And any person that sells, vends, or furnishes oleomargarine for the use and consumption of others, except to his own family table without compensation, who shall add to or mix with such oleomargarine any artificial coloration that causes it to look like butter of any shade of yellow shall also be held to be a manufacturer of oleomargarine within the meaning of said Act, and subject to the provisions thereof."

Section three of said Act is hereby amended by adding thereto the following: "Provided further, That wholesale dealers who vend no other oleomargarine or butterine except that upon which a tax of one-fourth of one per cent. per pound is imposed by this Act, as amended, shall pay two hundred dollars; and such retail dealers as vend no other oleomargarine or butterine except that upon which is imposed by this Act, as amended, a tax of one-fourth of one cent per pound shall pay six dollars."

Sec. 3. That section eight of an Act entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six, be, and the same is hereby amended so as to read as follows:

"Section 8. That upon oleomargarine which shall be manufactured and sold, or removed for consumption or use, there shall be assessed and collected a tax of ten cents per pound, to be paid by the manufacturer thereof; and any fractional part of a pound in a package shall be taxed as a pound: Provided, When oleomargarine is free from artificial coloration that causes it to look like butter of any shade of yellow said tax shall be one-fourth of one cent per pound. The tax levied by this section shall be represented by coupon stamps; and the provisions as existing laws governing the engraving, issue, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to stamps provided for by this section."

Sec. 4. That for the purpose of this Act "butter" is hereby defined to mean an article of food as defined in "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six; that "adulterated butter" is hereby defined to mean a grade of butter produced by mixing, reworking, rechurning in milk or cream, refining, or in any way producing a uniform, purified, or improved product from the different lots or parcels of melted or unmelted butter or butter fat, in which any acid, alkali, chemical, or any substance whatever is introduced or used for the purpose or with the effect of deodorizing or removing therefrom rancidity, or any butter or butter fat with which there is mixed any substance foreign to butter as herein defined, with intent or effect of cheapening in cost the product, or any butter in the manufacture or manipulation of which any process or material is used with intent or effect of causing the absorption of abnormal quantities of water, milk, or cream; that "process butter" or "renovated butter" is hereby defined to mean butter which has been subjected to any process by which it is melted, clarified or refined and made to resemble genuine butter, always excepting "adulterated butter" as defined by this Act.

That special taxes are imposed as follows:

Manufacturers of process or renovated butter shall pay fifty dollars per year and manufacturers of adulterated butter shall pay six hundred dollars per year. Every person who engages in the production of process or renovated butter or adulterated butter as a business shall be considered to be a manufacturer thereof.

Wholesale dealers in adulterated butter shall pay a tax of four hundred and eighty dollars per annum, and retail dealers in adulterated butter shall pay a tax of forty-eight dollars per annum. Every person who sells adulterated butter in less quantities than ten pounds at one time shall be regarded as a retail dealer in adulterated butter.

Every person who sells adulterated butter shall be regarded as a dealer in adulterated butter. And sections thirty-two hundred and thirty-two, thirty-two hundred and thirty-three, thirty-two hundred and thirty-four, thirty-two hundred and thirty-five, thirty-two hundred and thirty-six, thirty-two hundred and thirty-seven, thirty-two hundred and thirty-eight, thirty-two hundred and thirty-nine, thirty-two hundred and forty, thirty-two hundred and forty-one, and thirty-two hundred and forty-three of the Revised Statutes of the United States are, so far as applicable, made to extend to and include and apply to the special taxes imposed by this section and to the person upon whom they are imposed.

That every person who carries on the business of a manufacturer of process or renovated butter or adulterated butter without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than one thousand and not more than five thousand dollars; and every person who carries on the business of a dealer in adulterated butter without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than fifty nor more than five hundred dollars for each offense.

That every manufacturer of process or renovated butter or adulterated butter shall file with the collector of internal revenue of the district in which his manufactory is located such notices, inventories, and bonds, shall keep such books and render such returns of material and products, shall put up such signs and affix such number of his factory, and conduct his business under such surveillance of officers and agents as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulation require. But the bond required of such manufacturer shall be with sureties satisfactory to the collector of internal revenue, and in a penal sum of not less than five hundred dollars; and the sum of said bond may be increased from time to time and additional sureties required at the discretion of the collector or under instructions of the Commissioner of Internal Revenue.

That all adulterated butter shall be packed by the manufacturer thereof in firkins, tubs, or other wooden packages not before used for that purpose, each containing not less than ten pounds, and marked, stamped, and branded as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe; and all sales made by manufacturers of adulterated butter shall be in original stamped packages.

Dealers in adulterated butter must sell only original or from original stamped packages, and when such original stamped packages are broken the adulterated butter sold from same shall be placed in suitable wooden or paper packages, which shall be marked and branded as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe. Every person who knowingly sells or offers for sale, or delivers or offers to deliver, any adulterated butter in any other form than in new wooden or paper packages as above described, or who packs in any package any adulterated butter in any manner contrary to law, or who falsely brands any package or affixes a stamp on any package denoting a less amount of tax than that required by law, shall be fined for each offense not more than one thousand dollars and be imprisoned not more than two years.

That every manufacturer of adulterated butter shall securely affix, by pasting, on each package containing adulterated butter manufactured by him a label on which shall be printed, besides the number of the manufactory and the district and State in which it is situated these words: "Notice.—That the manufacturer of the adulterated butter herein contained has complied with all the requirements of law. Every person is cautioned not to use either this package again or the stamp thereon, nor to remove the contents of this package without destroying said stamp, under the penalty provided by law in such cases." Every manufacturer of adulterated butter who neglects to affix such label to any package containing adulterated butter made by him, or sold or offered for sale for or by him, and every person who removes any such label so affixed from any such package shall be fined fifty dollars for each package in respect to which such offense is committed.

That upon adulterated butter, when manufactured or sold or removed for consumption or use, there shall be assessed and collected a tax of ten cents per pound, to be paid by the manufacturer thereof, and any fractional part of a pound shall be taxed as a pound, and that upon process or renovated butter, when manufactured or sold or removed for consumption or use, there shall be assessed and collected a tax of one-fourth of one cent per pound, to be paid by the manufacturer thereof, and any fractional part of a pound shall be taxed as a pound. The tax to be levied by this section shall be represented by coupon stamps and the provisions of existing laws governing engraving, issuing, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to the stamps provided by this section.

That the provisions of sections nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen,. nineteen, twenty, and twenty-one of "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six, shall apply to manufacturers of "adulterated butter" to an extent necessary to enforce the marking, branding, identification and regulation of the exportation and importation of adulterated butter.

Sec. 5. All parts of an Act providing for an inspection of meats for exportation, approved August thirtieth, eighteen hundred and ninety, and of an Act to provide for the inspection of live cattle, hogs, and the carcasses and products thereof which are the subjects of interstate commerce, approved March third, eighteen hundred and ninety-one, and of amendment thereto, approved March second, eighteen hundred and ninety-five, which are applicable to the subjects and purposes described in this section shall apply to process or renovated butter. And the Secretary of Agriculture is hereby authorized and required to cause a rigid sanitary inspection to be made, at such times as he may deem proper or necessary, of all factories and storehouses where process or renovated butter is manufactured, packed, or prepared for market, and of the products thereof and materials going into the manufacture of the same. All process or renovated butter and the packages containing the same shall be marked with the words "Renovated Butter" or "Process Butter" and by such other marks, labels, or brands and in such manner as may be prescribed by the Secretary of Agriculture, and no process or renovated butter shall be shipped or transported from its place of manufacture into any other State or Territory or the District of Columbia, or to any foreign country, until it has been marked as provided in this section. The Secretary of Agriculture shall make all needful regulations for carrying this section into effect, and shall cause to be ascertained and reported from time to time the quantity and quality of process or renovated butter manufactured, and the character and the condition of the material from which it is made. And he shall also have power to ascertain whether or not materials used in the manufacture of said process or renovated butter are deleterious to health or unwholesome in the finished product, and in case such deleterious or unwholesome materials are found to be used in product intended for exportation or shipment into other States or in course of exportation or shipment he shall have power to confiscate the same. Any person, firm, or corporation violating any of the provisions of this section shall be deemed guilty of a misdemeanor and on conviction thereof shall be punished by a fine of not less than fifty dollars nor more than five hundred dollars or by imprisonment not less than one month nor more than six months, or by both said punishments, in the discretion of the court.

Sec. 6. That wholesale dealers in oleomargarine, process, renovated or adulterated butter shall keep such books and render such returns in relation thereto as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may, by regulation, require; and such books shall be open at all times to the inspection of any internal revenue officer or agent. And any person who wilfully violates any of the provisions of this section shall for each such offense be fined not less than fifty dollars and not exceeding five hundred dollars, and imprisoned not less than thirty days nor more than six months.

Sec. 7. This Act shall take effect on the first day of July, nineteen hundred and two.

Approved May 9, 1902.

The publishers of these journals will, no doubt, gladly send sample copies to those who may apply for them:

American Cheese Maker, Grand Rapids, Mich. Monthly.
Chicago Dairy Produce, Chicago, Ill. Weekly.
Creamery Journal, Waterloo, Iowa. Monthly.
Dairy and Produce Review, San Francisco, Cal. Weekly.
Dairy World, Chicago, Ill. Monthly.
Elgin Dairy Report, Elgin, Ill. Weekly.
Hoard's Dairyman, Fort Atkinson, Wis. Weekly.
Jersey Bulletin and Dairy Farmer, Indianapolis, Ind. Weekly.
Kimball's Dairy Farmer, Waterloo, Iowa. Semi-monthly.
Milk News, Chicago, Ill. Semi-monthly.
New York Produce Review and American Creamery, New York City. Weekly.
St. Paul Dairy Reporter, St. Paul, Minn. Weekly.

Note.—The National oleomargarine and the filled cheese laws are printed in full in the 1897 Report of the Dairy Association. The Indiana pure food law is printed in the 1898 Report of the Dairy Association.

The new, or amendments to the National Oleomargarine Laws are printed above.

INDIANA

FARMERS' INSTITUTES

From their Origin in 1882 to 1904.

BY
W. C. LATTA,
SUPERINTENDENT FARMERS' INSTITUTES.

Purdue University, Lafayette, Indiana,
1904.

Indiana Farmers' Institutes.

I. FARMERS' INSTITUTES PRIOR TO 1889.

For some years prior to the inauguration of farmers' institutes in Indiana, under State auspices, the subject came up for consideration at the meetings of the State Board of Agriculture. The earliest mention of farmers' institutes which I have found in the proceedings of the above named body is in the annual report for 1881, which covers the latter part of 1881 and the earlier part of 1882. At the January, 1882, meeting of the Indiana Delegate and State Board of Agriculture, Governor A. G. Porter, in a brief address, called attention to the desirability of embodying in the reports of the county and district agricultural societies some account of the condition and progress of agriculture in the several localities of the State represented. He urged that these reports should be sent in to the Secretary of the State Board of Agriculture, at least a month before the following meeting, in order that the matter contained therein might come up for intelligent discussion.

In discussing Governor Porter's address, Captain Henry C. Meredith, who was President of the Board of Agriculture for 1882, stated that agricultural institutes were being held in different parts of Ohio each year, which were doing much good toward helping to bring out the statistical information referred to by the Governor.

Prof. C. L. Ingersoll, who was then Professor of Agriculture in Purdue University, being present, remarked that he had had the honor of meeting with the first agricultural institutes among farmers in the United States. He stated that the State Board of Agriculture of Michigan was the originator of the idea, and that in 1875 they commenced holding meetings in such places as the people should desire, in the way of an experiment, which had proved very satisfactory. He added that the states of Ohio and Illinois took this subject up and said they would give lectures to local bodies in the states. This, he said, has been the Ohio plan up to this year, but this year Ohio has adopted the Michigan plan.

Dr. Allen Furnas, of Hendricks County, offered the following:

"Resolved, That it is the sense of this Delegate Board that the State Board should create an agricultural institute to meet once a year, to remain in session from ten days to a fortnight, for the discussion of matters pertaining to agricultural and kindred subjects."

On motion of Mr. Aaron Jones, of South Bend, this resolution was referred to a committee consisting of Mr. Jones, Mr. W. B. Seward, of Bloomington, and Mr. Sutherland, of Laporte. The report of this committee was presented at the evening session, January 4th, and reads as follows:

"That after due consideration we unanimously recommend:

"First. The holding of four Institutes as a trial in this State—two to be held this winter and two in the month of December, this year.

"Second. That the Secretary of this Board be authorized to receive proposals from different localities in the State for such Institute and have the power to make appointments.

"Third. That the town or locality expecting such Institute must pledge itself to defray the expenses of such Institute, including the providing of a suitable hall, warmed and lighted; and further, that the locality furnish at least one-half the papers on the program.

"Fourth. That the State Board of Agriculture ask of the Trustees of Purdue University that they send at least two of the Faculty of that institution to each Institute and lecture or read papers.

"Fifth. That such Institute hold two days with four or five sessions, as circumstances may seem to dictate.

"Sixth. That the Secretary of this Board, with a local committee at the place of holding such Institute, be empowered to make up the program for that special occasion.

"Seventh. We further recommend that the Legislature be memorialized for a special annual appropriation of $500 for the holding of Agricultural Institutes for the education of the farmers of our State.

"(Signed) AARON JONES.
"JOHN SUTHERLAND.
"W. B. SEWARD."

In accordance with the foregoing resolution, an effort was made to arrange for meetings in various parts of the State under the auspices of the State Board of Agriculture. Two of these meetings were held in the spring of 1882, the first at Columbus, Bartholomew County, March 8-9, and the second at Crawfordsville, Montgomery County, March 22-23, 1882.

In the address of Acting President L. B. Custer, delivered at the 1883 annual meeting of the State Board of Agriculture, is found this statement relative to farmers' institutes:

"You will recollect that at our last annual meeting, it was recommended that there be held a series of four farmers' institutes, at various points in the State. In compliance with that recommendation, the Board commenced the work by holding the first meeting at Columbus, Bartholomew County. The second institute was held in Crawfordsville, Montgomery County. Both of these meetings were well attended, and proved to be very interesting and instructive, and very encouraging for a continuation of the good work. The Board made an effort to locate and hold the other two institutes in November and December, but were unable to do so, as the political campaign and other impediments prevented.

"I would recommend the further holding of these institutes during this year. I have no doubt but that the influence of these meetings will be direct and effective for good, by the association of farmers and the enthusiasm that may be awakened by lectures, discussions, and an interchange of experience and thought, and so be the means of increasing the knowledge and intelligence of agriculturists."

At a later session of this same annual meeting, Mr. Jones presented the following resolution:

"Whereas, The experiment of holding a series of farmers' institutes, inaugurated by this Board at its annual session, January, 1882 as a means of imparting scientific and practical information, and awakening an increased interest in education and better and more successful modes and methods of practical agriculture, have proved eminently successful, and, in the opinion of this Board, should be continued as a permanent educational measure, tending to a higher appreciation of the practical value of a more general knowledge of the sciences in the successful prosecution of agriculture; therefore, be it

"Resolved, That this Board use its influence and memorialize the Legislature for an annual appropriation of $1,000, to be used in the defraying of the expenses of these institutes. Ours being an agricultural State, the highest interest of the commonwealth will be promoted by stimulating and fostering a more perfect and complete development of our agricultural resources in this manner."

The foregoing resolution was adopted after some little discussion by members of the Board, and referred to a committee on legislation. At the next meeting of the Board held in February, 1883, I find this minute:

"Mr. Mitchell, from the Legislative Committee, reported that all matters referred to the committee had been acted upon, with the exception of the appropriation for the farmers' institutes, which it was not deemed best to urge at present, fearing it might jeopardize the appropriation for the interest on their bonds."

I find no further mention of institute work in the reports of the State Board of Agriculture until the report for 1886, which contains in the minutes of the February meeting of 1886 this statement:

"The Executive Committee, in connection with the President, was directed to outline a system for gathering crop reports and forming farmers' institutes throughout the State," In the address of President W. B. Seward, delivered January 4, 1887, at the annual meeting of the State Board of Agriculture, this paragraph appears relative to farmers' institutes:

"Farmers' institutes are now held in many of our sister States, and have been tried to some extent in this State, but results have not been altogether satisfactory with us, owing to the fact that we have had no money provided us, as is the case in other States, to carry them on.

"The advantages of these institutes as educators are beyond question, and it is hoped that in time, when our Legislature is educated up to a knowledge of the advantages of them, and the fact that all education for the general good should be paid for out of the general fund, means will be provided us to carry them on. The subject of farmers' institutes is a proper one for your consideration."

Later at the same meeting, the committee to whom the President's address had been referred for recommendations, reported as to farmers' institutes as follows:

"We are also of the opinion that the Legislature should appropriate a sum of money each year to be used by the State Board for the purpose of sending a competent person out through the State to work up what are called 'Farmers' Institutes.' This course has been adopted by several of our sister States, and it has been found to work admirably and has been a source of great benefit to the farming community in every State where it has been adopted."

This was followed by a general discussion by members of the State and Delegate Board as to the ways and means of organizing and conducting farmers' institutes.

Following this discussion, Hon. Will Cumback offered the following resolution:

"Resolved, That all that portion of the President's address and the report of the committee to whom it was referred, on the subject of farmers' institutes, be referred to the State Board, with the request that they formulate a full set of rules for the organization of such institutes, and that the members of the State Board shall take such steps as they may deem best to secure such an organization in the county and townships in their several districts."

Messrs. Seward, Mitchell, Simonton and Lockhart were appointed a committee to formulate a system covering county institutes. This committee made its report at the January, 1888, meeting of the State Board of Agriculture. Part of this report (see Report of 1887) reads as follows:

"When the Board convened in February the members found themselves placed in a very embarrassing situation financially, owing to the failure of our Legislature to make appropriations for carrying out the work contemplated. The committee decided to postpone action in this matter until this meeting of the Delegate Board, and in the meantime each member was to seek for all information bearing on 'farmers' institutes.' Acting as one of the committee I initiated a correspondence with officers and managers of these institutes held in the States of Illinois, Ohio and Wisconsin. Through the kindness and courtesty of the managers in the three States mentioned, I have been placed in possession of the rules and regulations governing their work.

"I am reminded of the fact that our time is too limited to give details, and I will, therefore, only explain the workings of these institutes in one State, Wisconsin. Prior to 1884 the State Agricultural Society, the State Horticultural Society, and the State Dairymen's Association did all they could to introduce institute work throughout the State. The State Agricultural Society were induced to set apart a small sum of money to pay only the actual traveling expenses of professors of the State University. These gentlemen, assisted by local talent who were induced to take hold of the work, held a number of interesting meetings. Charles E. Easterbrook, a member of the State Legislature, formulated a bill in the interest of agriculture, which was passed. It appropriated money to carry on the institute work already begun. In 1885 $5,000 was appropriated, and a competent superintendent selected, who managed the institutes so successfully that last winter a special appropriation of $12,000 was made.

"I think I can safely say that Indiana is today in as good shape to commence the work of holding farmers' institutes as was the State of Wisconsin in 1884. The plan I would advise for present action would be the holding of at least one Institute in each county in the State between this and March 1st. I would require the members of the State Board of Agriculture to take charge of this work in their several districts, and see that these institutes are held. There is not a doubt in my mind about the feasibility of this plan of work. In many places local help will be freely given to thoroughly advertise the meetings. If this plan is adopted for this winter's work, we can go before the Legislature next winter and ask for a liberal appropriation for the purpose of meeting the necessary expenses of holding the institutes, with assurance of success."

This report was followed by a somewhat lengthy discussion, which resulted in the following resolution, presented by Mr. Nelson:

"Resolved, That the State Board be instructed to provide for a series of 'farmers' institutes' to be held during the coming year, one such meeting to be held in each member's district."

A later minute in the report of 1887 states:

"Mr. Seybold's motion instructing delegates to present the matter of holding 'farmers' institutes' to their respective societies, and carry their action to the State Board proper, was carried."

At the annual meeting of the State Board of Agriculture in January, 1889, Mr. R. M. Lockhart made the following report on farmer's institutes:

"Gentlemen of the Delegate Board—All those that are present with us today that were with us at the annual meeting in January, 1888, will remember the interesting discussion of the subject of holding farmers' institutes in this State. The discussion culminated in a motion by Mr. Seybold to refer the matter to the State Board proper, with a request that they should take some action in the matter. On the organization of the Board a special committee of three was appointed, consisting of Messrs. Lockhart, Seig and Officer, for the purpose of formulating some plan by which the work could be started in different parts of the State. Your committee prepared what they conceived to be the best plan for immediate work, and had the same published in the Indiana Farmer, believing that to be the best and surest method of reaching every county in the State. The editors of the Farmer published the plan, giving it a cheerful indorsement. By this arrangement it was suggested that the work be taken up by the members of the State Board in their respective districts, advising that at least one institute be held in each district between that time and the first of April.

"This duty having been performed by the special committee, each member of the State Board was notified of the action of the committee and left to do as he might see fit.

"We are glad to be able to report that a number of very interesting institutes have been held in the State.

"Respectfully submitted,
"(Signed) R. M. LOCKHART.
"J. Q. A. SEIG.
"V. K. OFFICER."

In the discussion which followed this report it appears that a number of farmers' institutes had been held the previous year—1888. On page 182, report of 1888, appears the following statement by the Secretary of the State Board:

"The history of farmers' institutes in Indiana has been varied. The first attempts to organize institutes in the State did not meet with favor, or, at least, did not obtain the results that were anticipated by the originators, i. e., bring out the farmers to hear and engage in the discussion of subjects pertaining to agriculture and stock raising. Several institutes were held in different parts of the State during 1887, which, from reports submitted to the Board of Agriculture, were failures, as regards attendance throughout. During the year (1888) just closed, however, success has crowned the efforts of workers in this field, and notably different results have obtained in a very large number of places, where institutes have been held. In many instances the interest has been maintained throughout the two days set apart for holding these meetings, and large crowds have come together in response to the call to hear addresses by learned gentlemen selected to conduct these institutes. The discussion of subjects presented appears to have been the most profitable result of the meetings, as in many instances it developed that the practical farmer was 'loaded' with ideas directly in opposition to those submitted in papers presented by eminent scientific gentlemen, and, of course, controversies ensued, which, although heated at times, aroused enthusiasm in the subject, and in the end, resulted beneficially to both farmer and instructor.

"Among the institutes held, programmes were received at the office of the Secretary of the Board of Agriculture from Rockville, Parke County; Peru, Miami County; Princeton, Gibson County; Laporte, Laporte County; Plainfield, Hendricks County; Franklin, Johnson County, and Anderson, Madison County."

Summary of Early Institutes.—The annual reports of the State Board of Agriculture contain accounts of but four of these institutes. Two of these meetings, as before stated, were held at Columbus, Bartholomew County, and at Crawfordsville, Montgomery County, in March, 1882. Both of these meetings were held under the auspices of the State Board of Agriculture. The other two meetings were held at Franklin, Johnson County, and at Anderson, Madison County, in 1888. The Johnson County institute was held under the joint auspices of Sugar Creek Grange and the State Board of Agriculture. The Madison County institute was held under the joint auspices of the State Board of Agriculture, the Madison County Fair Association and the Madison County Farmers' Club, the last-named taking the initiative.

It appears, therefore, that the State Board of Agriculture, as such, conducted but two institutes, those held in March, 1882. It is true, however, that the interest in the work was kept alive by the discussions upon "Farmers' Institutes," which were had at the annual meetings of the State Board of Agriculture during the eighties. It is also true that several members of the State Board of Agriculture were actively identified with the early farmers' institutes. Among those, members of the State Board of Agriculture deserving especial mention are: Henry C. Meredith (deceased), of Cambridge City, Wayne County; Alexander Heron (deceased), of Indianapolis, former Secretary of the State Board of Agriculture; R. M. Lockhart, of Waterloo, Dekalb County; Robert Mitchell, of Princeton, Gibson County; J. Q. A. Sieg (deceased), of Corydon, Harrison County; and S. W. Dungan, of Franklin, Johnson County. Among the other persons who took an active and prominent part in these early institutes might be mentioned Hon. A. G. Porter (deceased), at that time Governor of Indiana; J. G. Kingsbury and J. B. Conner, of Indianapolis, editors of the Indiana Farmer; Mr. C. L. Whitney, then of Cincinnati, O.; Prof. R. T. Brown (deceased); Dr. T. M. Stevens (deceased), and Mr. J. J. W. Billingsley, of Indianapolis; Mr. S. R. Quick and Mr. Henry Doup, of Columbus, Bartholomew County; Dr. Allan Furnas, of Hendricks County; Hon. Jas. A. Mount (deceased), of Montgomery County; Prof. J. M. Coulter, of Wabash College, Crawfordsville; J. N. Latta (deceased), and J. N. Babcock, both of Lagrange County; Prof. H. W. Wiley, of Purdue University, Lafayette, Ind., now chemist of the Department of Agriculture, Washington, D. C.; Prof. C. L. Ingersoll (deceased), of Purdue University, and later President of the Colorado Agricultural College; President J. H. Smart, Mrs. Emma P. Ewing, and Prof. W. C. Latta, of Purdue University.

The foregoing account has been gleaned from the annual reports of the State Board of Agriculture issued during the eighties. As several of the men who were actively identified with these early institutes are still living, the following circular letter of inquiry was sent out to them in the hope of securing further information:

"Dear Sir—Mr. John Hamilton, the recently appointed farmers' institute specialist of the National Department of Agriculture, desires to publish a history of the farmers' institute work throughout the country. He wishes an account, not only of what has been done under State control, but of the incipient stages of the work as well. You have some personal knowledge of the early stages of the work under the direction of the State Board of Agriculture. I would be glad, therefore, to have you give me what information you can, that I may embody the same, together with an account of the work since the State assumed control, in a report to Mr. Hamilton.

"Please state as fully as you can, when and where the first farmers' institutes were held, and under what general and local auspices. What men were prominently identified with the work at the beginning? Any information that you can give me, and any reference to other sources of information, will be thankfully received."

Several replies were received. These letters being chiefly written from memory and relating to events which happened nearly, if not quite, a score of years since, some slight inaccuracies may be expected. It is believed, however, that in the main they are substantially correct, as they throw some additional light upon the early institutes. Extracts from these letters are given below:

From Mr. J. B. Conner, editor of the Indiana Farmer, Indianapolis:

"I am in receipt of your letter of the 11th inst., inquiring about the first movements for farmers' institutes in this State. I am so very busy that it is impossible now to look up this data, though I am sure that if you would write Mr. R. M. Lockhart, Waterloo, Ind., he could give you the facts readily. The work was organized by the State Board of Agriculture in the early 80's. Mr. Lockhart, myself, and some other gentlemen were appointed a committee to organize the work, which we did without any funds providing for expenses. During the fall and winter several institutes were held in the north and northeastern parts of the State, and such expenditures as were required to be made, were provided by the localities where the institutes were held. This work went on for a few years, and when the work began to be better appreciated, the State Legislature responded to the demands of agriculture with suitable appropriation, and then you know the work was transferred to Purdue. This is an outline of the early struggles of the work. Mr. Lockhart can, no doubt, give you some closer data."

From Mr. R. M. Lockhart, of Waterloo, Ind.:

"Replying to your letter of recent date, asking me to give you all the information that I was in possession of as to the starting of the farmers' institute work in the State of Indiana.

"In order for me to do this it will be necessary for me to make some statements of a personal nature in order to show my own connection with this great work. I was elected a member of the Indiana State Board of Agriculture in January, 1874. At that time there were no farmers' institutes organized in this or any other adjoining States. From 1880 to 1883 my attention was called to the organization of this work in the States of Ohio, Michigan and Wisconsin. I called the attention of a number of our best farmers to the importance of taking up the work in our own State. I was engaged in business with my brother in Crawfordsville, Ind. We had business relations with many of the farmers of the county; among them James A. Mount, Jasper N. Davidson, John L. Davis and many others. They were all anxious to engage in the work. Some time in the winter of 1883 we arranged for the holding of a two days' institute at Crawfordsville. I secured the assistance of the Secretary of our State Board of Agriculture, Alexander Heron, Hon. John B. Conner, one of the editors of the Indiana Farmer, and J. J. W. Billingsley.

"I am not sure that President Smart, of Purdue, was with us, but my best recollections are that he took a part in the work. With the aid of the home workers we had a very successful institute. * * * Nothing more was done towards the holding of institutes until the annual meeting of the State Board of Agriculture in January, 1886. I presented the matter in a short address to the Board, urging that the work should be taken up by the State Board, as had been done by the States of Ohio, Michigan, Wisconsin and some other States, and after a lengthy and spirited discussion in favor of, and also opposed to, by some of the members, on the ground that they did not believe the farmers of the State would take interest enough in the work to make it a success. A motion prevailed that a committee of three be appointed to look into the matter and learn what had been accomplished in the adjoining States and submit a report at the annual meeting of 1887. This committee consisted of myself and two other members of the Board who had not given the matter any attention and desired me to look after the work and prepare a report for the meeting.

"During the following year I corresponded with parties in each one of the States mentioned, and secured what I deemed valuable information. At the annual meeting of 1887 I presented this as the report of the committee.

"The report was unanimously adopted and the committee continued and was asked to make all necessary arrangements for the starting of the work in the various counties of the State. At the request of the other members of the committee I prepared a program to be presented to the farmers of the State through the columns of the Indiana Farmer, asking them to take immediate action for the organization of a Farmers' Institute in every county in the State, the same to be held under the auspices of the Indiana State Board of Agriculture.

"Taking it for granted that the members of the State Board from every district in the State would see to it that the work would be immediately looked after in this particular district, the program, as prepared, was approved by the editors of the Indiana Farmer and published the following week, the editors urging the farmers of the State to give this work their hearty support. As the member of the Board from the Sixteenth District, I went to work immediately to arrange for the holding of institutes in the counties comprising my district. I had a promise from President Smart, of Purdue, to send me some of his best men to aid me in the work. Also the editors of the Indiana Farmer and Mr. Billingsley, editor of the Tile and Drainage Journal, tendered their services. In arranging for holding institutes in my district, I set the first meeting to be held at Lagrange, Ind., on Tuesday, February 14, 1887. In making the arrangement I had the hearty co-operation of Dr. Rerick, editor of the Standard, Hon. J. N. Babcock and J. N. Latta. The speakers secured for that meeting were yourself and Prof. Webster, of Purdue University, Hon. Jno. B. Conner, editor of the Indiana Farmer, and Judge Robert W. McBride, together with several local workers.

"As you are well aware, we had a very interesting institute. The second meeting had been arranged for the following day to be held at Ligonier, Ind., but a few days before I was notified to withdraw the appointment as it was claimed that the farmers in that vicinity could not be induced to take hold of the work.

"I then, through the assistance of J. N. Latta and J. N. Babcock, secured the hall at Sycamore Corners, in the west part of Lagrange County, and held the institute on Wednesday, going from there to Kendallville on Thursday, to Angola on Friday, and to this place—Waterloo—

on Saturday. The same foreign speakers assisted me at each of the above-named places.

"As you will remember, each one of these institutes was a success. Within the first two years I aided in the organization of institutes in twenty-two counties of the State. This was done prior to the placing of the work in the control of Purdue University. I was ably assisted in the work by a number of the best workers in the State. Among them I will mention a few who took part in a number of the institutes: Hon. J. N. Babcock, J. N. Latta, Hon. Aaron Jones, of South Bend; Wm. A. Banks, of Laporte; yourself and Prof. Webster, of Purdue; Evan Peed, of New Castle; both of the editors of the Indiana Farmer—Kingsbury and Conner; Mr. Billingsley, Editor Metcalf, of Anderson, and many others that I might mention; all of these assisted in the work without pay for the same.

"In addition to the places named where institutes were organized in which I took a part, I will mention some others: Goshen, South Bend. Laporte, Warsaw, Columbia City, Fort Wayne, Peru, Kokomo, Anderson. Muncie and Richmond.

"I have been informed that there are other parties in the State who claim the credit of first starting the institute work in the State of Indiana. I think from your own knowledge of the work done by me that you will admit that the above statements are substantially true."

From Robert Mitchell, Princeton, Ind.:

"Answering your request as to the Institute work before the State took hold of it, I don't remember dates, but the Gibson County Agricultural Society held four farmers' institutes at Princeton during the four years preceding the beginning of the work under State control. [The work, therefore, must have begun in Gibson County in the winter of 1884-85.—Superintendent Farmers' Institute.]

"These institutes were held under the management of the fair association, the society paying all the expenses incurred. I was President of the fair association at the time and S. Vett Strain, Secretary, with a board of twelve directors. The speakers on the first occasion from a distance were: Mrs. Virginia C. Meredith, of Cambridge City, subject: 'Improved Breeds of Catttle,' with special reference to 'Shorthorns;' Mrs. George Thomas, of Rockport, on 'Poultry for Profit;' Col. Bridgeland, of Richmond, on 'Draft Horses, Especially French Draft;' Hon. John Landrigan, of Albion, Ill., on 'The Roadster Horse.' Mrs. A. Smith, of Princeton, discussed 'Poultry for Profit,' and I had a paper on 'Improved Public Highways.' At that time a paper of that kind was not thougnt much of because of the cost of building the roads, but it had its effect, as our people are demanding good roads now faster than we can build them. * * * This institute was a great success, as were also the others. I think you and President Smart attended the second institute and spoke of the agricultural work being done at Purdue. These institutes were very successful, as have been those since held under State management. * * * I am sure that Gibson County was the first county in Indiana that held farmers' institutes. [This is probably true, so far as institutes held under exclusively local auspices are concerned.—Superintendent Farmers' Institutes.]

"I was a member of the State Board of Agriculture 21 years, and was familiar with all the work of the Board during that time. I recall no farmers' institutes held before the State work began, except ours in Gibson County. [Mr. Mitchell did not attend the institutes at Columbus and Crawfordsville in 1882. This doubtless accounts for his failure to recall these early meetings, which were held directly under the auspices of the State Board of Agriculture.—Superintendent Farmers' Institutes.]

"Mr. John Q. A. Seig was a good institute worker, and began the work in Harrison County, possibly before the State did. [I do not believe Mr. Sieg held any institutes prior to the beginning of the State work, but it is my recollection that the first institute under State auspices was held at Corydon, in Harrison County, and that Mr. Sieg was active in arranging for and conducting this meeting.—Superintendent Farmers' Institutes.] Mr. Jasper N. Davidson, of Montgomery County, was also an active worker at Farmers' Institutes. Mr. R. M. Lockhart, of Waterloo, also took an active part in the early work. * * * I was at the first institute held at Corydon, but can't now recollect whether it was a year before State aid or not. L. B. Custer, of Logansport, was also in the first work. Steve Dungan, of Franklin, also took an interest in institutes. Alex. Heron, who was Secretary of the State Board of Agriculture for 18 years, did all he could to encourage agricultural and live stock associations. I served three terms as President of the State Board, and with Mr. Heron's assistance, the different live stock State associations were formed. They might be called institutes, as practically the same kind of instruction prevailed."

From Mr. L. B. Custer, Logansport:

"At the January, 1882, meeting of the State Board of Agriculture it was decided to hold four institutes during the year. These institutes were to be held under the auspices of the State Board of Agriculture. But two of these meetings were held. The annual report for 1881 gives a full account of these meetings. * * * I don't know of any other farmers' institutes being held under the auspices of the State Board of Agriculture. A number of farmers in Cass County in January or February of 1889 organized a county farmers' institute, and held several meetings during the year, and then came under your direction as superintendent under the law of 1889."

From Mrs. Virginia C. Meredith, Cambridge City, Ind.:

"Replying to your inquiry, I did not do any institute work at the time you mention, but my husband, Henry C. Meredith, did. It was, I think, in 1880 or 1881, and as a member of the State Board of Agriculture. You will, I think, find the matter in the reports of the Board of about those dates.

"The State Board undertook to inaugurate farmers' Institutes, and my husband attended several. I can only recall Columbus definitely as one of the points." [Capt. Henry C. Meredith also attended the Farmers' Institute held at Crawfordsville in 1882.—Superintendent Farmers' Institutes.]

Character of Early Institutes.—In character these early institutes were a little more formal and less like a school than the farmers' institutes of the present day. In some instances there was an extended and formal address of welcome by the Mayor, judge, or some other prominent person. At times speakers were escorted to prominent places of interest in the city before the opening of the institute. Most of the speakers on programs read papers. These papers were discussed in much the same way as in the farmers' institutes at the present time.

The following are some of the subjects discussed at these early institutes: "Mutual Dependence of all Branches of Industry;" "Source and Value of Statistics;" "Sanitary Measures;" "Commercial Fertilizers;" "Breeding and Feeding;" "Farm Drainage;" "Industrial Education;" "The Growth of Sorghum Cane and the Manufacture of Sugar and Syrup Therefrom;" "How to Promote the True Dignity and Standing of the Farmers;" "Our Common Insect Pests;" "The Relation of Geology and Agriculture;" "The Selection of Seeds as a Means of Improving Crops;" "Our Highways;" "Some Thoughts on Ensilage;" "The Fence of the Future;" "Desirable New Potatoes;" "What Horse the Farmer Should Raise;" "Dairy Farming;" "Our Kitchen Interests;" "The Orchard and Fruit-Lot;" "Milk and Milk Tests;" "The Farmers' Relation to Swine Breeding," etc.

Although held in an irregular, somewhat spasmodic and very incomplete way, these early institutes doubtless did very much to interest the people of the State in practical discussions on topics of everyday interest to farmers. With no public funds to draw upon, with no authorized and centralized control of the work, and dependent almost wholly upon local initiative, only a few favored localities could be expected to take an interest, and consequently, receive the benefits of the work. Good seed though was being sown in fruitful soil, however, and although the writer has been unable to trace the relation between the earlier farmers' institutes and the enactment of a law making special provision for this work, it is undoubtedly true that they exercised an important influence on State legislation.

II. FARMERS' INSTITUTES UNDER STATE CONTROL.

Historical Outline.—In the General Assembly of 1889, Hon. W. W. Robbins, representative from Miami County, introduced a bill making provision for the farmers' institutes under State control. This bill, known as House Bill No. 430, was passed in the closing hours of the General Assembly and approved by the Governor on March 9, 1889. Mr. Robbins, who is now living in Indianapolis, writes that he introduced the bill at the request of his farmer constituents, who had enjoyed some profitable institutes and agricultural exhibits, made possible largely through the public spirit and enterprise of the business men of Peru.

In the autumn of the same year—1889—the farmers' institute work was begun under State control. With the understanding that the institute act required the holding of an institute annually in each county of the State, an effort was made to get the work organized in all of the counties the first year. This was soon found to be impossible, owing to the lack of information and to the indifference on the part of the people in many localities. Farmers' institutes were held, however, in 50 counties the first season—1889-90—and in 41 of the remaining 42 counties the second season; in the third season—1891-92—farmer's institutes were held in 90 counties and in the fourth year in 89 counties. Beginning with the fifth season—1893-94—and continuing since, at least one institute has been held annually in each of the 92 counties of the State.

At first the institutes were held almost exclusively at the county seats, although in a few counties the plan has been, from the first, to hold the meetings successively at different points.

Beginning with 1898 an annual conference of institute officers and workers has been held in October of each year.

In 1901 the General Assembly increased the appropriation for farmers' institutes from $5,000 to $10,000 per annum.

In the autumn of the same year a woman's conference was held for the purpose of considering what farmers' institutes might do for the women of the farm.

Beginning with 1901, two or more two-day district farmers' institutes have been held annually in the month of August.

The increased appropriation becoming available in 1901, the number of institutes was largely increased, and from that time on approximately half of the meetings have been held at outlying points near county boundaries.

On the following pages, under appropriate headings, will be found the institute act, and a brief account of the organization, scope, growth and results of the farmers' institute work.

Farmers' Institute Act.—In 1889 the General Assembly passed the farmers' institute act, the full text of which reads as follows:

"An act to encourage the study of agriculture, horticulture, economic entomology and agricultural chemistry, providing for county institutes, prescribing the duties of trustees and faculty of Purdue University in connection therewith, and making an appropriation therefor.

"Section 1. Be it enacted by the General Assembly of the State of Indiana, That it is hereby made the duty of the committee of experimental agriculture and horticulture of the board of trustees, together with the faculty of the school of agriculture of Purdue University, to appoint, before November 1 of each year, suitable persons to hold in the several counties of the State, between the 1st of November and the 1st day of April of each year, county institutes for the purpose of giving to farmers and others interested therein instruction in agriculture, horticulture, agricultural chemistry and economic entomology.

"Sec. 2. Such institutes shall be held at such times and places as said committee and faculty may determine, and under such rules, regulations and methods of instruction as they may prescribe: Provided, however, That such institutes shall be so conducted as to give to those attending the results of the latest investigations in theoretical and practical agriculture and horticulture.

"Sec. 3. For the purpose of carrying out the provisions of this act, paying the salaries of instructors and other necessary expenses, the sum of $5,000 is hereby appropriated, to be expended under the direction of the said committee of said Board of Trustees, and they shall annually report such expenditures and the purpose thereof to the Governor."

General Committee on Institutes.—For the purpose of carrying out the provisions of the institute act, the board of trustees appointed a general committee on institutes, consisting of the president of the university, the director of the experiment station and the professor of agriculture. This committee has direct charge of the institute work. The last mentioned officer, acting as Superintendent of Institutes, formulates plans for the approval of the committee, and has immediate supervision of the work.

Organization of the Work.—At first the members of the State Board of Agriculture were invited to take charge of the work in their respective districts. Those who were willing to act were appointed to assist the general management in holding meetings in the several counties of their respective districts. Although several members of the Board of Agriculture co-operated acceptably and effectively, it was soon found desirable to appoint a suitable person within each county to take the local supervision of the work. It soon became apparent that some form of local organization within each county would give standing and permanence to the work. Accordingly, granges, agricultural societies, farmers' clubs, etc., were invited to take local supervision of the institute work. Further experience demonstrated the necessity of having some form of local organization for the definite purpose of holding farmers' institutes. Each institute was therefore requested to elect a chairman, who might be recognized by the general management as the one having charge of the work in the county. A secretary was also elected, and a little later, a number of the counties elected or appointed vice-presidents for the several townships. These local organizations, varying in character and not well knit together, and often with no written or definite constitution, answered the purpose very well for a number of years. With the increased appropriation in 1901 and the consequent enlargement of the work, it soon became apparent to the general committee that a compact, uniform, county-wide form of organization would secure more effective local co-operation in carrying forward the work throughout the State. A form of constitution for the government of the local associations was, therefore, submitted to the annual conference of institute workers, which met in October, 1903. With some slight changes the proposed constitution was unanimously approved by the conference. It was then sent out to the several counties for adoption. During the season just closing—1903-04—one-half of the counties adopted the constitution substantially as presented. It is believed that within a year or two more, when the purpose of the proposed constitution is better understood, and its necessity becomes more apparent to the local societies, it will be generally adopted as the working plan for conducting farmers' institutes throughout the State.

The following is the text of the proposed constitution:

CONSTITUTION AND BY-LAWS OF THE ———— COUNTY FARMERS' INSTITUTE ASSOCIATION.

Article I.—Name.—This organization shall be known as the ———— County Farmers' Institute Association.

Article II.—Object.—Its object shall be to assist the State Institute management in increasing the number and value of farmers' institutes, extending their benefits, and thereby promoting the agricultural interests of the country as well as the financial, social, intellectual and moral betterment of its citizens.

Article III.—Members.—Any resident of the county over 16 years of age, may become a member by payment of the annual dues.

Article IV.—Meetings.—Section 1. The association shall hold an annual meeting at the time of the annual farmers' institute, scheduled by the State superintendent, or within one month thereafter, for the purpose of electing officers, collecting the annual dues, making up the roll of members and transacting such other business as may properly come before it.

Sec. 2. Other meetings may be held at such times as may be agreed upon.

Article V.—Dues.—Section 1. The annual dues shall be —— cents per member, payable in advance, at or before the time of the annual meeting.

Sec. 2. All members whose dues remain unpaid at the time of the annual meeting shall be dropped from the roll of members, but may be reinstated at any time on the payment of dues.

Article VI.—Officers.—The officers shall consist of a president or chairman, secretary, assistant secretary, treasurer, and one vice-president for each township in the county.

Article VII.—Duties of Officers.—Section 1. The chairman shall have general supervision of the institute work in the county, acting under the instructions of the State superintendent in arranging for and conducting all farmers' institutes held under State auspices. He shall appoint suitable persons to fill any vacancies that may occur between elections.

Sec. 2. In addition to the usual duties of the office, the Secretary shall prepare a list of the officers elect and of the paid-up members, and make reports of the several institutes held under State auspices, in accordance with regulations prescribed by the State superintendent of institutes.

Sec. 3. The treasurer shall, in addition to the usual duties of his office, collect the annual membership dues, keep an accurate record of the same and furnish the secretary, within one week after the annual meeting, a complete list of the paid-up members, with post office addresses.

Sec. 4. The president, secretary, treasurer, and the several vice-presidents shall constitute an executive committee, which shall have charge of the affairs of the association in the intervals between meetings. This committee shall, upon request of the state superintendent, suggest desirable dates and places for farmers' institutes, themes for assigned speakers, and give such other information as said superintendent may desire in arranging the schedule of institutes.

Article VIII.—Quorum.—Section 1. A majority of the paid-up members shall constitute a quorum, but a majority vote of the membership is necessary to amend the constitution or by-laws.

Sec. 2. A majority of the executive committee, at any duly announced meeting, shall constitute a quorum of said committee.

Article IX.—Woman's Auxiliary. A woman's auxiliary for the purpose of holding special or separate sessions of the institute for women may be formed whenever it may be deemed desirable.

Article X.—By-Laws.—The association may adopt such by-laws as may seem necessary to further the work of the association, provided, that no by-law shall conflict with the constitution of the association.

Article XI.—Amendments.—The constitution or by-laws may be amended at any regular meeting, due notice in writing having been given at a previous regular meeting. Provided, that no amendment shall be adopted that will, in any way, affect the relation of the local association to the State management of farmers' institutes, without first having received the approval of said management.

Purpose and Scope of the Work.—The purpose of the work as expressed in the institute act is to give "to farmers and others interested therein instruction in agriculture, horticulture, agricultural chemistry and economic entomology." Experience soon showed the desirability of widening somewhat the scope of the work. Yet the definite aim has been from the outset to make the instruction thoroughly practical in character and suited to the needs of the several classes of farmers in the State.

More broadly speaking, the aim is—

(1) To give instruction that will be practically helpful to all classes of farmers and their wives in the performance of the everyday work of the farm and the farm home;

(2) To awaken a greater interest in the promotion of agriculture, betterment of the farm home, improvement of the highways and advancement of the rural schools;

(3) To heighten the attractions of farm life, and interest the young people of the country to seek adequate preparation for the successful pursuit of agriculture.

Plan of the Work.—The general plan is to hold one or more institutes in each county of the State during the institute season—November 1st to April 1st. In the spring of each year, the county institute chairmen are requested to advise the superintendent of institutes as to the dates and places desired for meetings, and the general themes to be discussed by assigned speakers. With this advice before him, the superintendent arranges, each year, a schedule of meetings and assigns speakers therefor. The several meetings are thrown into groups—usually three each—two days of five sessions being generally allowed to each meeting. As a rule, the same two speakers are sent to the three meetings, which constitute a group for one week. During the coming year, a considerable number of one-day institutes will be held, with one speaker assigned to each.

The institute schedule and the list of speakers are printed and sent out alike to officers and speakers before the opening of the institute season. The printed list of speakers contains instructions for the guidance of speakers in the preparation and presentation of their several subjects. A model program is occasionally printed by the superintendent and sent out to the local officers as a further guide in the preparation of their programs.

Arranging for Meetings.—Three classes of meetings are held: First, local institutes in the several counties, usually two-day meetings in the past, but to be one-day or two-day meetings in the future. Second, two-day district institutes for a group of counties. Third, a two or three-day annual conference of institute officers and workers for the entire State. The details of arranging for the local institutes are left to the county chairmen and their co-workers. Some six or eight weeks before the time of holding the institute, the county chairman calls together his associates and prepares a program in which the speakers assigned by the superintendent and local workers have about an equal share. The program is printed, published in the local papers and distributed through the mails and by other means. Programs, posters and handbills of the coming meeting are prepared and posted up or handed out in various parts of the county. Frequently a circular announcing the meeting and extending an invitation to all people of the county is printed and sent out in generous quantities through the mails. Postal card invitations are often made use of for the same purpose. Notices are frequently given in churches and in the schools of the county. A suitable room for the meeting is engaged early so that the program may contain a definite announcement of the place, as well as the date and hour of the meeting.

It is not unusual to arrange for a competitive exhibit of farm products in which the young folks, or all the farmers of the county may join. In such case, a circular announcing the premiums is usually published and distributed as a part of the program. All of the foregoing details are looked after by the chairmen and program committees in their respective counties.

The district institutes are arranged for by the State superintendent in connection with a local committee of farmers and business men at the places where the meetings are to be held. In selecting places for district meetings the particular needs of the several sections of the State are kept in mind so that the topics for discussion will be of special interest to the people of the localities where meetings are to be held.

The annual conference of institute officers and speakers is arranged for by the general committee on institutes. The character of the work done at the district institutes and the annual conference of institute workers will be referred to under appropriate headings below.

Conducting the Institutes.—Indiana has no institute conductors as do several other States. The county institute chairman is, as a general rule, the presiding officer. As such he has charge of all the details of opening and closing the meetings, conducting the discussions, preserving order, etc. Sometimes he calls a subordinate officer to the chair, but usually he presides in person. This plan does not always insure an effective presiding officer, but it does tend to secure a more abiding local interest in the work where the meetings are held. The people who attend the meetings readily overlook any little shortcomings of their own presiding officer, and as he has their sympathy and support, the interest and success of the meeting are often very satisfactory, notwithstanding the lack of training of the presiding officer in parliamentary usages. The greatest lack in the local chairman is in conducting informal discussion. It often happens that the discussion rambles somewhat. To check this tendency, in a measure, the senior institute speaker is requested by the State Superintendent to aid the chairman in conducting informal discussions, and in such other ways as may seem necessary or desirable.

A frequent, though not universal feature of the institute is the question box. As a rule, some one is appointed to take charge of this and in case there is a lull in the proceedings, or a speaker does not appear promptly at the time set, the question box is drawn upon for material for informal discussion. The one in charge of the question box assigns the questions to different persons to answer. More frequently than otherwise, the questioning is oral in character and quite spirited. The informal discussion is frequently conducted by the institute speakers, some of whom are very happy and successful in conducting this feature of the work. Indeed, it is quite the rule for the assigned speaker to conduct the informal discussion following the presentation of his own subject.

Reporting the Meetings.—Two official reports of each meeting are required: (1) By the secretary; (2) by the assigned speakers. These reports contain such matter as will inform the superintendent as to the character of the work done, and aid him in planning for future work in the locality. In addition to these official reports, almost every institute is reported to the local press by the secretary, or by press reporters who attend the meetings. These reports often contain an admirable digest of the work done. Sometimes they do not go to the core of the matter, but even then, they serve to call attention to the institute work, and thus widen the sphere of its influence.

The columns of the local press of the State have, as a general rule, been generously devoted to announcing and reporting farmers' institutes.

Institute Speakers.—The Indiana plan of securing effective institute speakers is unique. Recognizing, from the first, the impossibility of supplying all the meetings with trained speakers and scientific experts, the aim has been to develop practical workers from the ranks of the everyday farmers. Accordingly, an extended list of speakers, with subjects, is printed and sent out each year. This list contains not only the speakers who have acquired considerable facility, experience and effectiveness in institute work, but also many who have never addressed a meeting outside of the home county. The speakers of the latter class are urged to accept invitations and to attend nearby meetings, without charge, or at most for expenses. In this way, they acquire some experience, and if the reports of their work are favorable, the way is open to assign them as regular workers. This plan has been highly successful. The very best practical workers in the State have been developed in this way, and they are highly useful as they have generally the full confidence of their auditors.

As far as practicable, specialists, station workers and the faculty of the school of agriculture are drawn upon to supplement the labors of the practical workers.

The following speakers are worthy of especial mention for gratuitous services rendered in the early stages of the institute work: Messrs. R. M. Lockhart, Robert Mitchell and John Q. A. Seig were especially active and helpful members of the State Board of Agriculture in arranging for and conducting institutes in their respective districts; Mrs. Virginia C. Meredith and the late lamented Governor Mount attended many of the farmers' institutes during the first two years that the work was conducted under State control. They not only freely donated their services, but they proved especially helpful in performing the duties assigned them on the programs and in informal discussion as well.

Methods of Instruction.—In the early stages of the work it was quite frequently the practice of the speakers to read papers, especially those who had not much previous experience in the institute work. The papers, or essays, were somewhat formal in character, and the audience seldom took an active part in discussing the subjects presented. In recent years, the methods of the school room are more generally employed, especially for the day sessions. This is particularly true in the discussion of practical subjects. The exercises are only sufficiently formal to secure an orderly movement and a systematic presentation of the subjects for discussion. As a rule, the speaker takes about half or three-fourths the time allotted to a given subject, and then gives way for questions and informal discussion by the audience. Frequently, when the speaker has the subject well in hand, he permits the audience to question him as he proceeds. In certain lines, and with certain workers, this method has proved highly successful, as it holds the attention of the audience closely upon the subject before the meeting.

Inexperienced speakers are requested to write brief papers, not exceeding twenty minutes in length, in which their experience and observation are definitely set forth. The decided preference of the audience is, however, for the speaker who can discard paper and notes and speak extemporaneously. The more experienced and more effective workers use only outlines, and refer to the written, or printed page, only when they wish to make definite statements or give figures that can not well be carried in the memory. Models, photographs, diagrams, charts and black-boards are freely made use of by the speakers to more definitely fix the instruction given.

Local Institutes.—Two classes of local institutes in the counties have hitherto been held, namely, (1) annual meetings usually at the county seats, and (2) supplemental meetings at outlying points near county boundaries. The general institute management is required by law to undertake one institute in each county of the State every year. This has been done ever since the work was fully organized, in 1903-04, as will appear from the tabular statement below.

These meetings have in the past, with few exceptions, occupied two days each, usually of five sessions, morning, afternoon and evening the first day and morning and afternoon the second day. By means of the supplemental institutes—which were made possible by the increased appropriation, meetings have been much more equally distributed throughout the State than heretofore. With the more perfect local organization that is now being effected, it will soon be possible to effect a fairly equitable distribution of the meetings.

During the coming season the meetings will be apportioned in the counties in proportion to area. Each county having less than 200 square miles will be entitled to two days of institute work; each county ranging in area from 200 to 350 square miles will be apportioned three days of institute work; each county having over 350 and less than 500 square miles will be allowed four days of institute work; each county having over 500 square miles will be granted five days of institute work. Letters received from the county chairmen assure the inauguration of the proposed plan throughout the State. In this way it will be possible to place a farmers' institute within the reach of every farmer in the State as often as once in two or three years at farthest.

The following table shows the number of counties holding meetings and the total number of meetings held each year; also the average and aggregate attendance since 1894, prior to which time no record of attendance was kept:

Year.	*Number Counties Holding Institutes.*	*Total Number Institutes Held.*	*Average Attendance.*	*Aggregate Attendance.*
1889-90	50	50		
1890-91	41	41		
1891-92	90	102		
1892-93	89	95		
1893-94	92	95		
1894-95	92	97	118	11,446
1895-96	92	103	272	28,016
1896-97	92	104	232	24.128
1897-98	92	108	272	29,376
1898-99	92	102	250	25,500
1899-00	92	104	269	27,976
1900-01	92	104	279	29,016
1901-02	92	197	191	37,603
1902-03	92	179	192	34,226
1903-04	92	175	338	59,189

The marked increase in the attendance for the last year shown in the table is due to a difference in the method of reckoning as compared with that used in previous years. Prior to 1903-04, the average of the attendance at the several sessions of any institute has been put down as the attendance for the institute. Manifestly this falls short of the actual number of different persons attending the institute, and, therefore, fails to show the full attendance. At the 1903 meeting of the American Association of Farmers' Institute Workers, it was decided to compute the attendance by adding, to the number present at the session showing the highest attendance, one-half the number present at the session showing the next highest attendance, as this has been found to give approximately the number of different persons in attendance. Accordingly this method has been pursued in reckoning the attendance at Indiana farmers' institutes the past year. To illustrate the method now in vogue: Suppose the highest attendance at any session of an institute to be 500, and the attendance at the next highest session 400; adding half the second attendance to the first gives 700 as the approximate number of different persons in attendance. While this method, as stated above, is only approximately correct, and probably exceeds the real number present, it doubtless gives more nearly the actual attendance of different persons than the method of taking the average of the several sessions, previously employed in this State.

District Institutes.—Beginning with 1901, when the increased appropriation for farmers' institutes became available, a few district institutes of two days each have been held in the late summer of each year, the number varying according to the funds remaining at the close of the regular institute season.

The general management has three purposes in holding these district meetings: (1) To promote some special line of agriculture in a section of the State specially suited to its pursuit; (2) To afford high-class instruction that would prove helpful to the most intelligent and progressive men engaged in special agricultural pursuits; (3) To awaken a wider interest in the subjects considered and to stimulate the workers in attendance to more earnest effort in behalf of the local institutes to be held during the winter months.

Thus far the attendance at these institutes has been disappointing as to numbers. This is, perhaps, unavoidable owing to the season of the year when the meetings have been held. Doubtless the attendance would be considerably greater if the meetings could be held in October, but this has seemed impracticable (1) Because the annual conference of institute officers and workers is held in that month, and (2) Because the general management is absorbed in other necessary work at that time.

The outline programs of two of these district institutes, which appear below, will serve to show the general character and trend of the work done at these meetings.

DISTRICT STOCKMAN'S INSTITUTE.

Held at Huntington in 1901.

PROGRAM.

Tuesday, August 27th, 9:30 a. m.—Opening Session.

A Word of Welcome—J. Fred France, City Attorney.
Response—Prof. W. C. Latta, Superintendent Farmers' Institute.
Necessity for Progress in Agriculture if We Are to Maintain Our Position as Agricultural Producers in This Country—Prof. W. A. Henry, Director Wisconsin Agricultural Experiment Station.
Improved Live Stock Essential to Enduring Agricultural Prosperity—Mrs. Virginia C. Meredith, Cambridge City, Ind.
Discussion.
Announcements.

Tuesday Afternoon, 1:30 o'clock.

For the Breeder and Feeder.

The Importance of Good Blood in the Meat Producing Animals of the Farm—Prof. C. S. Plumb, Director Indiana Experiment Station.
Elementary Lesson in the Science of Stock Feeding—Prof. W. A. Henry.
Questions and Discussion.

Tuesday Evening, 7:30 o'clock.

Symposium.

Some Features of European Agriculture that Particularly Impressed Me—Prof. C. S. Plumb, Prof. W. A. Henry.
American and European Homes—Mrs. Virginia C. Meredith, Professor Home Economics, University of Minnesota.

Informal reception in opera house given by the business men of Huntington.

Wednesday, August 28th, 9:00 a. m.

Sheep and Swine.

Up-to-Date Management and Winter Feeding of Sheep—H. P. Miller, Sunbury, Ohio.
Questions and Discussion.
Best Methods of Handling Swine—W. B. Anderson, Otwell, Ind.
Health of Flock and Herd—Dr. A. W. Bitting, Veterinarian Indiana Experiment Station.
Questions and discussion.

Wednesday Afternoon, 1:30 o'clock.

Beef Cattle.

Shall the Small Farmer Try to Produce Beef?—H. H. Keim, Ladoga, Ind.
Results with Silage Fed to Beef Stock—Chas. Thorp, Medford, Wis.
A Plea for the Silo in Beef Production—Prof. W. A. Henry.
General Discussion.

Suggested Topics for the Question Box.

Early Market Lambs.
Rations for Young Animals.
Co-operative Live Stock Breeding.
Feeding Quarters for Cattle, Sheep and Swine.
Producing a Balanced Ration on the Farm.

DISTRICT HORTICULTURAL AND GOOD ROADS INSTITUTE.

Held at New Albany in 1903.

PROGRAM.

Friday, September 4th, 9:30 a. m.—Horticultural Day.

Greeting—Hon. Frank L. Shrader, Mayor of New Albany.
Response—Prof. W. C. Latta, State Superintendent Farmers' Institute, Lafayette.
Theme: Condition of Success with Small Fruits.
(1) Strawberries—Geo. B. Harrell, Duncan.
(2) Raspberries—U. M. Stewart, Madison.
(3) Grapes—Chas. Sacksteder, Leavenworth.
Announcements.
Introductions.

1:30 p. m.

Theme: Fruit Interests of Southern Indiana.
(1) What They Are and What They May Become.—R. A. Simpson, Vincennes.
(2) How the Fruit Possibilities of Southern Indiana May be Realized. —J. W. Stanton, Richview, Ill., President Southern Illinois Horticultural Society.
(3) Why Farmers' Families Should be Interested in Horticulture—Mrs. C. N. Lindley, Salem.
General Discussion.

7:30 p. m.

Theme: Methods that Win with Tree Fruits.
(1) The Apple—Joe A. Burton, Orleans.
(2) The Pear—C. W. Thomas, Corydon.

(3) The Stone Fruits—J. G. Scott, Borden.

(4) Orchard Enemies and How to Combat Them—J. Troop, Professor Horticulture and Entomology Purdue University.

Questions and General Discussion.

Saturday, September 5th, 9:30 a. m.—"Good Roads" Day.

Theme: Our Public Highways—Means for Their Improvement.

(1) The Work and Aims of the National Good Roads Association—W. H. Moore, St. Louis, President National Good Roads Association.

(2) National Aid to Road Improvement—Hon. J. B. Killebrew, Nashville, Tenn., representing the National Bureau of Good Roads Enquiries, Washington, D. C.

Questions and Discussion.

1:30 p. m.

Theme: Methods and Cost of Constructing and Maintaining Good Roads.

(1) How to Make a Hard Earth Road—D. Ward King, Maitland, Mo.

(2) Methods, Cost and Results of Highway Improvements—C. V. Seastone, Instructor in Sanitary Engineering, Purdue University.

Questions and General Discussion.

Adjournment.

ADDITIONAL TOPICS SUGGESTED FOR DISCUSSION.

"Co-operation of Farmers and Business Men in Highway Improvement," "The Railways and Good Roads," "A Good Roads Organization for Southern Indiana," "The Transportation Problem in Horticulture," "Organization for Marketing Fruit," "How to Educate the Farmers to Co-operate for the Betterment of Their Conditions."

The accompanying table shows the number and character of these meetings, and also the estimated attendance each year since the work began:

Year.	*Subjects Considered.*	*Place.*	*Estimated Attendance.*
1901	Dairying	Plymouth	250
1901	Horticulture	Orleans	200
1901	Horticulture and Forestry	South Bend	300
1901	Butchers' Stock	Huntington	250
1902	Horticulture and Melon Growing	Princeton	150
1902	Butchers' Stock	Anderson	200
1903	Horticulture and Good Roads	New Albany	200
1903	Butchers' Stock	New Castle	200

Annual Conference of Institute Workers.—Beginning with 1898 an annual conference of institute officers and workers has been held at the University in the month of October. In holding these annual conferences, several purposes have been kept steadily in view. The more important of these are: (1) To inform all the workers more fully as to the nature, scope, needs and importance of the institute work; (2) To consider carefully the lines of work that should be undertaken; (3) To discover and adopt the best methods of advertising, conducting and reporting the institutes; (4) To acquaint the workers with each other and thus develop and foster a spirit of good fellowship and mutual helpfulness; (5) To give to the workers a higher and broader conception of the dignity and importance of the institute work, and to inspire them to more diligent effort to accomplish the ends in view; (6) To enable the workers to meet, from time to time, prominent and widely useful men in the field of agricultural education, and thereby acquire broader and truer conceptions of the importance and relations of the farmer; (7) To inspire a deeper love for agricultural pursuits and a more earnest desire for the betterment of agricultural conditions; (8) To arouse a deeper and more intelligent interest in the improvement of the rural home, the rural schools and the rural highways as means for agricultural improvement and progress.

The several conferences hitherto held have borne immediate fruit in the better preparation of the chairmen for their several meetings and in the more earnest and effective work of the institute speakers.

Gradually, but surely, the farmers of the State are coming to recognize the importance of their calling and the advantages of the State for agricultural pursuits. There is already a widespread, vital and growing interest in the betterment of the rural schools and in the improvement of the highways. The farm home is also receiving attention. This is clearly shown in the discussions at the institutes on labor-saving contrivances for the housewife, home sanitation, home reading, home embellishments, etc. While other agencies are conspiring to bring about these desired results, it is entirely within the truth to say that the annual conferences of institute workers have been productive of great good in these directions.

Unfortunately, State funds have not been available to defray all the expenses of these conferences. Without exception, speakers in the State have served without compensation. The several chairmen in attendance have been reimbursed for railroad fare only, as a rule. It is estimated that the expense borne by the delegates attending these conferences has aggregated annually from $100 to $300. In view of this, the attendance has been highly gratifying. The character and scope of the work done at these conferences may be seen by reference to the outline program of the last one, held in October, 1903, which is as follows:

SIXTH ANNUAL CONFERENCE OF INSTITUTE WORKERS.

Held October 13-15, 1903.

PROGRAM.

Tuesday, 9:30 a. m.

Oliver Kline, Huntington, presiding.
Greeting—W. E. Stone, President Purdue University.
Theme: Local Organization for Institute Work.
(1) Methods and Results in Ontario, Can.—G. C. Creelman, Superintendent Farmers' Institute for Ontario.
Questions.
(2) Plan for Perfecting Local Organization in Indiana—W. C. Latta, State Superintendent Farmers' Institutes.
Discussion—Announcements.

Tuesday, 1:30 p. m.

T. W. Logan, Westchester, presiding.
Theme: Farmers' Institutes and the Young People.
(1) How Farmers' Institutes May Help the Young People of the Farm—H. F. McMahan, Liberty.
(2) How the Young People of New York State are Being Reached—Prof. L. H. Bailey, Dean College of Agriculture, Cornell University.
Questions and Discussion.

Tuesday, 7:30 p. m.

P. McHenry, Washington, presiding.
Theme: The Improvement of the Rural Schools.
(1) Progress Made and Results Attained in Indiana—Stanley M. Coulter, Professor of Biology, Purdue.
(2) What Should the Rural Schools Do for the Children?—Professor Bailey.
Questions and Discussion.

Wednesday, 9:30 a. m.

W. C. Goldsmith, Evansville, presiding.
Theme: Specialization in Institute Work.
(1) What Has Been Done in Pennsylvania—John Hamilton, Farmers' Institute Specialist, Department of Agriculture, Washington, D. C.
(2) What Special Lines May Now Be Taken Up—U. M. Stewart, Madison.

(3) Some Things for Chairmen and Speakers to Consider in Specialized Work—D. B. Johnson, Mooresville.
General Discussion.

1:30 to 3:00 p. m.

Inspection of Farm, Live Stock, Laboratories and Shops.

Wednesday, 3:00 p. m.

E. H. Nixon, Crown Point, presiding.
Theme: Disposition of the State Institute Fund.
(1) The Practice Elsewhere—Mr. Hamilton, Washington, D. C.
(2) The Intent of the State Institute Act—W. E. Stone, President Purdue University.
(3) Plan Suggested for Consideration—Professor Latta.
Discussion.

Wednesday, 7:30 p. m.

Mrs. O. E. Carter, Seymour, presiding.
Theme: Farmers' Institutes and the Women of the Farm.
(1) Special and Separate Sessions for Women—Mrs. Oliver Kline, Huntington.
(2) Topics for and by Women on the General Progam—Mrs. C. N. Lindley, Salem.
Questions and Discussion.

Thursday, 9:30 a. m.

J. E. Dilgard, Waterloo, presiding.
Theme: Facts and Theories Concerning Soils and Crops.
(1) As to the Soil Humus, Drainage and Tillage (fifteen minutes)—A. T. Wiancko, Associate Professor Agriculture, Purdue University.
(2) As to Biological Factors in Crop Production (fifteen minutes)—J. C. Arthur, Professor Veg. Physiology and Pathology, Purdue University.
(3) As to Effects of Fertilization on Soils and Crops (fifteen minutes)—Prof. H. A. Huston, St. Louis, Mo.
(4) As to Insects and Insecticides (fifteen minutes)—Jas. Troop, Professor Horticulture and Entomology, Purdue.

Thursday, 1:30 p. m.

M. L. Harris, Rising Sun, presiding.
Theme: Facts and Theories in Live Stock Husbandry.
(1) As to Breeding and Feeding (fifteen minutes)—J. H. Skinner, Professor Animal Husbandry, Purdue.

(2) As to Nutritive Values of Foods (fifteen minutes)—Arthur Goss, Director Agricultural Experiment Station, Purdue.
(3) As to the Dairy Cow and Her Products (fifteen minutes)—H. E. Van Norman, Professor Dairying, Purdue.
(4) As to Diseases of Farm Animals (fifteen minutes)—R. A. Craig, Professor of Veterinary Science, Purdue.
Questions.

In August, 1901, a woman's conference was held at the university. Although informal in character, the following topics were earnestly discussed by those in attendance:

1. Needs of Farmers' Wives and Daughters.
2. What can be Done for the Women of the Country?
    (a) By farmers' institutes?
    (b) By agricultural colleges?
3. Woman's Auxiliaries.
    (a) What they may accomplish.
    (b) Their relations to the farmers' institutes.
    (c) How they may be organized.

This conference was closed by an address on the education of the home maker by Mrs. Virginia C. Meredith, of Cambridge City, Ind., who was at that time Professor of Home Economics of the University of Minnesota.

The unanimous conclusion of the woman's conference was that the institutes can and should be more helpful to the women of the farm. A general desire was expressed by the women in attendance for instruction at the institutes in domestic economy. As a result of this conference, woman's auxiliaries to the farmer's institutes have been organized in a number of the counties. In several of the counties these auxiliaries hold independent sessions for home makers—usually at the time of the annual institutes. In other cases these auxiliaries take charge of one or more sessions of the regular institute.

It is gratifying to be able to state that the women of the farm are taking a notable interest and active part in the farmers' institute work throughout the State. Several women have served acceptably and effectively as presidents of county institute organizations. They also serve as vice presidents, secretaries and as members of executive committees of the local institute associations. Some of the most earnest and successful institute workers have been women of the farm. Women have been regularly in attendance upon the annual conferences, frequently bearing their own expenses.

The importance of woman's work on the farm is coming to be more fully recognized by farmers, themselves, and it is the purpose of the general management to make the annual conference of institute workers even more helpful to these women in the future than in the past.

The attendance at the several conferences, as well as the number of counties repesented each year, appears in the accompanying table:

1898...........counties represented, 51; number registered delegates, 115
1899...........counties represented, 63; number registered delegates, 106
1900...........counties represented, 53; number registered delegates, 147
1901...........counties represented, 61; number registered delegates, 168
1902...........counties represented, 86; number registered delegates, 245
1903...........counties represented, 81; number registered delegates, 205

Exhibits and Judging at the Institutes.—Exhibits of culinary, dairy and cereal products, notably corn, are becoming increasingly common features of the farmers' institutes. These exhibits add greatly to the interest of the meeting, when properly conducted, and they have generally been made truly educational in character as the reasons for the markings have been clearly set forth by the judges who passed upon the articles exhibited.

Judging corn and live stock by the score card are frequent and highly profitable features of the institutes in recent years. Two methods of judging are in vogue: (1) An object lesson given by the instructor, who with the corn or the animal before him, marks the several points noted in the score card, giving reasons for the cuts made from the standard in each instance; (2) a class exercise in which several persons judge by the score card, the instructor reviewing the several scores and explaining his reasons for revising the judgment of the members of the class. This exercise is not only profitable for those who take part in the judging, but for all who are spectators as well, because the attention is riveted upon each point of excellence or demerit. In one county, Rush, a score card has been devised and adopted for judging farms. For the past two or three years farms in Rush County have been entered in this contest and passed upon by a competent judge in the late summer, who later reviewed his work before the annual institute. In consequence, many farms have been tidied up, the attractiveness of the country increased and pride in rural surroundings stimulated.

Score Cards Used at Institutes.—The several kinds of score cards that have been used by institute instructors are given below. With the exception of the first score card for judging farms, which has been adopted by the Rush County Farmers' Institute Association, these score cards are in regular use with the students of the School of Agriculture of Purdue University. They are used at institutes, without material change, by members of the faculty as they go out to attend these meetings.

MODEL FARM SCORE CARD.

1.	Soil—Condition for producing plant growth	6
2.	Soil—Freeness from weeds, stone, stumps, etc	4
3.	Drainage—Amount, quality and distribution	4
4.	Fencing—Amount, condition, quality and arrangement	6
5.	Water—Amount, distribution and arrangement	4
6.	Buildings—Barns, proportionate to size of farm and stock handled, convenience of construction, condition and location	7
7.	Residence—Proportionate size, condition, convenience and location	6
8.	Fruit—Variety, amount and quality	2
9.	Specials—Location of farm as to market, school, church, telephone, public highways	7
10.	Equipments—Gas, silos, scales, garden, ornamental shrubs, lawns, walks, etc.	5
11.	Crops—Proper distribution as compared to adaptability	6
12.	Crops—Condition and quality as pertains to variety and proper cultivation	5
13.	Woodland—Timber and grass—amount, quality and condition	4
14.	Live Stock—Horses, adaptable breed, quality, condition, proportionate number and profitableness	20
15.	Live Stock—Cattle, points as above	20
16.	Live Stock—Hogs, points as above	20
17.	Live Stock—Sheep, points as above	20
18.	Poultry	2
19.	Equipments—Variety and quality of implements, machinery, harness, etc.	4
20.	Summary—General management and appearance	8
	Total	100

SCORE CARD FOR CORN.

Date. ....

Number of exhibit..

Name of variety....... ....

STANDARD OF VARIETY.

Length...

Circumference..

Proportion grain to cob ....

Points.		Student's Score.	Corrected Score.	Instructor's Score.
1. Uniformity of exhibit	10			
2. Shape of ears	5			
3. Color of ears	10			
4. Market condition	10			
5. Tips of ears	5			
6. Butts of ears	5			
7. Kernel uniformity	10			
8. Kernel shape	10			
9. Length of ears	5			
10. Circumference of ears	5			
11. Space between rows and kernels	10			
12. Proportion of corn to cob	15			
Total	100			

Remarks. ....

Name of student...

SCORE CARD FOR BEEF CATTLE.

Scale of Points.	Standard.	Student's Score.	Corrected.
General Appearance (40 points)—			
1. Weight, estimated.........lbs.; actual........ lbs. according to age	10		
2. Form, straight top line and underline; deep, broad, low set, stylish	10		
3. Quality, firm handling; fine hair, pliable skin; dense, clean bone; evenly fleshed without ties or rolls	10		
4. Condition, deep, even covering of firm flesh, especially in region of valuable cuts	10		
Head and Neck (7 points)—			
5. Muzzle, mouth large; lips thin; nostrils large	1		
6. Eyes, large, clear, placid	1		
7. Face, short, expressive	1		
8. Forehead, broad, full	1		
9. Ears, medium size, fine texture	1		
10. Neck, thick, short; throat clean	2		
Forequarters (9 points)—			
11. Shoulder Vein, full	2		
12. Shoulder, covered with flesh, compact on top, snug	3		
13. Brisket, advanced, breast wide	1		
14 Dewlap, skin not too loose and drooping	1		
15. Legs, straight, short, arm full; shank fine, smooth	2		
Body (30 points)—			
16. Chest, full, deep, wide; girth large; crops full	4		
17. Ribs, long, arched, thickly fleshed	8		
18. Back, broad, straight	8		
19. Loin, thick, broad	8		
20. Flank, full, even with udder line	2		
Hindquarters (14 points)—			
21. Hips, smoothly covered; distance apart in proportion with other parts	2		
22. Rump, long, wide, even; wide tail head, smooth, not patchy	2		
23. Pin Bones, not prominent, far apart	1		
24. Thighs, full	3		
25. Twist, deep, plump; purse in steers full, indicating fleshiness	4		
26. Legs, straight, short, shank fine, smooth	2		
Total	100		

Animals.. Date..

Student..

SCORE CARD FOR DRAFT HORSES.

Scale of Points.	Perfect Score.	Student's Score.	Corrected.
Age			
General Appearance (22 points)—			
1. Height, estimated ...., actual			
2. Weight, over 1600 lbs.; estimated ....lbs.; score according to age	6		
3. Form, broad, massive, proportioned	4		
4. Quality, bone smooth, hard; tendons lean; skin and hair fine	8		
5. Temperament, energetic, good disposition	4		
Head and Neck (8 points)—			
6. Head lean, medium size	2		
7. Muzzle fine; nostrils large; lips thin, even	1		
8. Eyes, full, bright, clear	2		
9. Forehead, broad, full	1		
10. Ears, medium size, well carried	1		
11. Neck, muscled, crest high; throatlatch fine; windpipe large	1		
Forequarters (22 points)—			
12. Shoulders, sloping, smooth, snug, extending into back	3		
13 Arm, short, thrown back	1		
14 Forearm, heavily muscled, long, wide	2		
15. Knees, wide, clean cut, straight, deep, strongly supported	2		
16. Cannons, short, lean, wide; sinews large, set back	2		
17. Pasterns, sloping, lengthy, strong; fetlocks wide, straight	2		
18. Feet, large, even size; horn dense; sole concave; bars strong; frog large, elastic; heel wide, one-half length of toe and verticle to ground	6		
19. Legs, viewed in front, a perpendicular line from the point of the shoulder should fall upon the center of the knee, cannon, pastern and foot. From the side, a perpendicular line dropping from the center of the elbow joint should fall upon the center of the knee and pastern joints and back of hoof	4		
Body (9 points)—			
20 Chest, deep, wide, low, large girth	2		
21. Ribs, long, close sprung	2		
22. Back, straight, short, broad, muscular	2		
23 Loins, wide, short, thick, straight	2		
24. Underline, flank low	1		
Hindquarters (29 points)—			
25. Hips, smooth, wide	2		
26. Croup, wide, muscular	2		
27. Tail, attached high, well carried	1		
28. Quarters, deep, heavily muscled; thighs muscular	4		
29. Gaskins or lower thighs, wide, muscled	2		
30. Hocks, clean cut, wide, straight	6		
31. Cannons, short, wide; sinews large, set back	2		
32. Pasterns, sloping, strong, lengthy; fetlocks wide, straight	2		
33. Feet, large, even size; horn dense; dark color; sole concave; bars strong; frog large, elastic; heel wide, one half length of toe and verticle to ground	4		
34. Legs, viewed from behind, a perpendicular line from the point of the buttock should fall upon the center of the hock, cannon, pastern and foot. From side, a perpendicular line from the hip joint should fall upon the center of the foot and divide the gaskin in the middle; and a perpendicular line from the point of the buttock should run parallel with the line of the cannon	4		
Action (10 points)—			
35. Walk, smooth, quick, long, balanced	6		
36. Trot, rapid, straight, regular	4		
Total	100		

Animal..Date..

Student..

SCORE CARD FOR LARD HOGS.

Scale of Points.	Standard.	Student's Score.	Corrected.
General Appearance (30 points)—			
1. Weight, score according to age	4		
2. Form, deep, broad, low, long, symmetrical, compact, standing squarely on legs	8		
3. Quality, hair silky; skin fine; bone fine; mellow covering of flesh, free from lumps and wrinkles	8		
4. Condition, deep, even covering of flesh, especially in region of valuable cuts	8		
5. Temperament, mild, quiet	2		
Head and Neck (8 points)—			
6. Snout, medium length, not coarse	1		
7. Eyes, full, mild, bright	1		
8. Face, short; cheeks full	1		
9. Ears, fine, medium size, attached neatly	1		
10. Jowl, strong, neat, broad, firm	2		
11. Neck, thick, medium length, smooth to shoulder	2		
Forequarters (12 points)—			
12 Shoulder, broad, deep, full, compact on top	8		
13. Breast, advanced, wide	2		
14. Legs, straight, short, strong; bones clean; pasterns upright; feet medium size	2		
Body (32 points)—			
15 Chest, deep, broad, large girth	4		
16. Sides, deep, lengthy, full; ribs close and well sprung	8		
17. Back, broad, straight, thickly and evenly fleshed	9		
18. Loin, wide, thick, straight	9		
19. Belly, straight, even	2		
Hindquarters (18 points)—			
20. Hips, wide apart, smooth	3		
21. Rump, long, level, wide, evenly fleshed straight	3		
22. Ham, heavily fleshed, plump, full, deep, wide	10		
23. Legs, straight, short, strong; bone clean; pasterns upright; feet medium size	2		
Total	100		

Animal.. Date..

Student..

Interesting the Young People.—At first the attendance at farmers' institutes was composed almost wholly of gray-haired men, many of whom were in the reminiscent stage of life. There was a small proportion of middle-aged men, but women and young people were the rare exception. Gradually the age of those in attendance has grown less throughout the entire period of the farmers' institute work. At the present time, it is no unusual thing to see a farmers' institute audience composed largely of people under 40 years of age, with a very liberal sprinkling of young people. By degrees the general and local institute management have come to realize the importance and necessity of systematic efforts to interest the young people in the institute work. Various ways of accomplishing this have been tried, with fair success, in a number of institutes. In some cases, the young people have been given charge of the music; at a goodly number of institutes there have been evening programs especially for the school children, at which songs, recitations and essays by the children have been the order. In a few cases prizes have been offered for essays on farm topics written and presented by the young folks. Occasionally, exhibits in which the young people had a share, have been arranged for.

At the last institute conference the question of interesting and enlisting the young folks of the farm in the institute work received earnest consideration. Systematic measures are already on foot in several counties of the State to awaken a keen and abiding interest on the part of the young people in the institute work. One of the most laudable undertakings in this line is the recent joint offer of the Fair Association and the Farmers' Institute and Home Makers' Association of Tippecanoe County to award prizes to young people for exhibits of products grown or made by them. The prizes offered by the two associations aggregate almost $100.00. The proposed plan of competition is original and unique. It provides that the young people between the ages of 12 and 20, who hold certificates of membership in the Farmers' Institute or Home Makers' Association, may exhibit articles of their own production, first at the fair the coming summer, and later at the institutes the coming winter.

The young people's exhibit at the fair will be under the management of the farmers' institute. The several exhibits to be made later at the farmers' institutes will be judged by a carefully arranged schedule of points in which the yield and area of the crop grown, the quality of the article exhibited, and a written description of the method of growing or making the same, will all receive due consideration.

As the plan in question gives promise of being an effective means of interesting the young people and affording, at the same time, a highly practical training to those who enter the competition, it has been published and sent out to the institute officers and workers throughout the State. The full text of the circular setting forth the plan of competition is as follows:

PROPOSED COMPETITION.

Open to the Young People of Tippecanoe County between the Ages of 12
and 20, Who are Members of the County Farmers' Institute
or Home Makers' Association.

Upon the recommendation of the Tippecanoe County Farmers' Institute, the County Fair Association will offer, at the coming fair, premiums aggregating about fifty dollars for exhibits of corn, oats, poultry, butter and bread, grown or made by young people, between the ages of 12 and 20, who live on farms in Tippecanoe County and who hold membership tickets in the County Farmers' Institute or Home Makers' Association.

List of premiums offered by the Fair Association—

		1st.	2d.	3d.
1.	Half bushel unshelled yellow corn	$3 00	$2 00	$1 00
2.	Half bushel unshelled white corn	3 00	2 00	1 00
3.	Half bushel white oats	3 00	2 00	1 00
4.	Half bushel mixed oats	3 00	2 00	1 00
5.	Half bushel Irish potatoes	3 00	2 00	1 00
6.	Loaf yeast bread	1 50	1 00	50
7.	Loaf salt rising bread	1 50	1 00	50
8.	Loaf brown bread	1 50	1 00	50
9.	Two-pound roll butter	1 50	1 00	50
10.	Trio Plymouth Rock fowls	2 00	1 00	50
11.	Trio Wyandotte fowls	2 00	1 00	50

The exhibits will be placed together in a suitable room, and be in charge of the Farmers' Institute. The awards will also be made by persons appointed by the Farmers' Institute or Home Makers' Association. The premiums awarded will be paid by the Tippecanoe County Fair Association. No entry fee will be required in the above special class but each exhibitor must present a ticket showing membership in the Farmers' Institute or Home Makers' Association.

List of premiums offered by the Farmers' Institute:

The County Farmers' Institute or Home Makers' Association will duplicate the premiums offered by the Fair Association upon the following conditions:

(1) The exhibits will be made at the several farmers' institutes to be held in the county during the season of 1904-05, as may hereafter be designated.

(2) Each exhibitor must be present in person, submit in writing a description—not exceeding 500 words—of the method employed in growing the crops or poultry, or in making the butter or bread, and read same at the Institute.

(3) Each exhibitor must certify to the area and yield of crop, or age and breed of fowls, etc., and that the article was produced by the exhibitor. This certified statement must be attested by two witnesses.

(4) Each person will be permitted to exhibit in but one class, and make but a single entry.

The several exhibits in each class will be judged according to a scale of points as follows:

Corn—	Points.
For exhibit at fair	15
For exhibit at institute (10 ears)	15
For area (2 points for each acre)	10
For yield per acre, by weight, 70 pounds per bushel, November 1 (1 point for each bushel over 60)	30
For description of method of growing	30

Oats—

For exhibit at fair	15
For exhibit at institute (peck)	15
For area (2 points for each acre)	10
For yield per acre by weight, 32 pounds per bushel (1 point for each bushel over 50)	30
For description of method of growing	30

Potatoes—

For exhibit at fair	15
For exhibit at institute (peck)	15
For area (2 points for each ¼ acre)	10
For yield per acre by weight, 60 pounds per bushel (1 point for each 5 bushels over 100)	30
For description of method of growing	30

Poultry—

For exhibit at fair	25
For exhibit at institute	25
For description of method of raising	50

Butter—

For exhibit at fair	25
For exhibit at institute	25
For description of method of making	50

Bread—

For exhibit at fair	25
For exhibit at institute	25
For description of method of making	50

A first premium awarded by the fair will entitle the exhibitor at the farmers' institute to the full number of points for the fair exhibit, named above. Second and third premiums awarded at the fair will entitle the exhibitors to two-thirds and one-third, respectively, of the said number of points.

Those who enter the crop contest should keep a careful record of the fertilization, culture, harvesting and area of the crop in order to give an exact and intelligent report of the work at the time of making the exhibit at the institute.

Those who raise poultry for the exhibit should, in like manner, keep a careful record of hatching, feed, care, etc. The exhibit of poultry in every case will consist of a trio of fowls, including a cockerel and two pullets, not exceeding 6 months of age.

The competition at the farmers' institutes will not be limited to those who exhibit at the county fair. Those who do exhibit at the fair, will have the advantage, however, because they will be entitled to the added points, named above, for said exhibit at the fair.

It should be borne in mind that the competition at the fair and at the farmers' institutes is open only to those who are members of the Farmers' Institute or Home Makers' Association. The annual dues in these associations is 25 cents.

Young people who are eligible to this competition in point of age, and are so situated as to take part in the competition, are urged to do so, not alone for the premiums offered, nor yet for the satisfaction of winning a prize, but chiefly for the stimulus it will give to earnest effort and for the practical education it will afford.

The young people may become members of the Farmers' Institute or Home Makers' Association at any time on payment of the annual dues. The officers of the two associations—including a vice-president for each association in every township in the county—are authorized to solicit members and receive dues in their respective townships.

It is the purpose of the officers to raise the money for the premiums offered by means of membership dues. The farmers and their wives throughout the county are, therefore, urged to become members of the Association and thus lend a hand in the good cause.

Signed by the Committee on Exhibits.

HENRY LEAMING, Romney,
MRS. J. M. SULLINS, Elston,
FERNANDO BRIER, Montmorenci.

Co-operation in the Institute Work.—Much of the success of the Indiana farmers' institutes is due to the active, continuous and effective co-operation of individuals and organizations. At the outset, several members of the State Board of Agriculture, as before stated, rendered excellent gratuitous service in conducting the institutes in their several respective districts. From year to year, the Board of Agriculture has kindly published reports of the institute work and papers of local workers furnished by the State Superintendent. In the earlier years of the work, a number of public-spirited and prominent farmers donated much time in attending the institutes and in taking part in the programs rendered.

The agricultural and the local press of the State have contributed very much to the publicity and effectiveness of the institute work. Quite generally the notices and articles relating to the institute work, which have been sent out by the superintendent, have been promptly published. The leading agricultural papers have shown a notable interest, also, in publishing brief reports of many of the meetings, sent in by their local correspondents. Almost without exception, the local papers of the State have given generous space to publishing reports of the meetings in their respective localities. In several instances, special editions have been issued for the purpose of bringing the institute work more prominently before the general public.

The Central Passenger Association has been a staunch ally and an able supporter of the institute work from the very outset. At the beginning of the work, this association generously offered half rates to delegates, by rail, attending the several institute meetings, provided the attendance should reach 100 or more in each case. It was soon found out, however, that the attendance did not justify the continuance of this offer. The association then kindly consented to grant special rates to the institute speakers, upon request of the State Superintendent. From year to year, this concession has been kindly renewed, and almost without exception, the several railroad lines crossing the State have granted the concession of special rates to institute speakers, authorized by the Central Passenger Association.

The support rendered to the institute work by Purdue University is also deserving of especial mention. Throughout the entire period of the work the president of the University has served as chairman of the general committee on institutes, and the director of the experiment station has also served as a member of the committee. In the aggregate these officers have given much time and thought to the work, for which they have never received any compensation from the institute fund. The bills presented against the institute fund by county chairmen and institute speakers, aggregating several thousand dollars each year, have been registered and audited by the officers of the university, free of charge. In addition to this, all the members of the agricultural faculty and several of the general faculty of the university, have attended a goodly number of the institutes and taken an active part, making no charge whatever for their services, although their duties have been materially increased by this gratuitous work.

Expenditure of Funds.—Each year $25 is apportioned to each county for the purpose of meeting the local expenses of the several institutes. In addition to this, two speakers are assigned, as a rule, to each two-day meeting and one speaker to each one-day meeting, expenses paid. In recent years, about $1,000 has been expended annually upon the several district institutes and the annual conference of institute officers and workers. The balance of the institute fund is used to pay the salaries of the superintendent and clerks, and to defray the expenses of the superintendent's office, including postage, printing, stationery, traveling expenses, etc.

Results of the Work.—From the nature of the work it is manifestly impossible to make any tabular, or strictly accurate, statement of results obtained. It is believed, however, the following statement is conservative and within the truth in every respect. Briefly enumerated, some of the results are: More intelligent and better care of the soil; greater care to avoid the introduction of noxious weeds; better culture of crops; increased area devoted to clover and leguminous crops; improvement in seed corn; increased yields in crops; better kept farms; improvement in live stock; greater interest in dairying and horticulture, and a clearer recognition of the natural adaptations of the State to these pursuits; greater interest and pride in the calling of the farmer; improvement of rural highways; improvement of rural schools; improvement in home reading, chiefly through circulating libraries; higher appreciation of the natural advantages of Indiana as an agricultural State; a growing recognition of the necessity and value of agricultural education as a means of continued progress in agriculture.

Farmers' Institutes Held in 1903-4.—The following schedule gives a complete list of the farmers' institutes, previously arranged for and held in the several counties during the season of 1903-4, with dates and speakers assigned:

NOVEMBER.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE	DATE.	ASSIGNED SPEAKERS.
Ripley Cross Plains Wm. R. Craig, Cross Plains	Monday, Nov. 2 Tuesday, Nov. 3	Agee. Dorrell.
Scott, Scottsburg A. G. Mace, Lexington	Wednesday, Nov. 4 Thursday, Nov. 5	Agee. Coleman.
Clark, Prather W. P. Bottorff, Utica	Friday, Nov. 6 Saturday, Nov. 7	Agee. Mrs. Carter.
Clark, Marysville J L. Jones, Marysville	Monday, Nov. 2 Tuesday, Nov. 3	Gwaltney. Stewart.
Jacksen, Crothersville D. M. Lett, Crothersville	Wednesday, Nov. 4 Thursday, Nov. 5	
Washington. Little York B. M. Owens, Little York	Friday, Nov. 6 Saturday, Nov. 7	
Allen, Huntertown Geo. V. Kell, Huntertown	Monday, Nov. 2 Tuesday, Nov. 3	Rankin. Billingsley.
Allen Monroeville W R Brown, Monroeville	Wednesday, Nov. 4 Thursday, Nov. 5	
Huntington, Andrews John Stephan, Huntington	Friday, Nov 6 Saturday, Nov. 7	
Crawford. West Fork C. T. Myler, West Fork	Wednesday. Nov. 11 Thursday, Nov. 12	Burton. Cooperider.
Spencer, Richland City John C. Haines, Rockport	Friday, Nov. 13 Saturday Nov. 14	
Greene. Bloomfield Lewis De Vilbiss, Bloomfield	Monday, Nov 9 Tuesday, Nov 10	D. B Johnson Stockwell.
Knox. Bicknell E. House, Bicknell	Wednesday, Nov. 11 Thursday, Nov 12	D B. Johnson. Miller.
Knox, Frichton W. T. McClure, Vincennes, R. R. 2	Friday, Nov. 13 Saturday, Nov. 14	

NOVEMBER—Continued.

Place of Meeting and Chairman of Institute.	Date.	Assigned Speakers.
Ripley, Osgood T. G. Day, Correct	Monday, Nov. 9 Tuesday, Nov. 10	Agee. Mrs. Ross.
Jefferson, Lancaster R. H. Wood, Madison, R. R. 1	Wednesday, Nov. 11 Thursday, Nov. 12	
Switzerland, Vevay John P. Porter, Vevay	Friday, Nov. 13 Saturday, Nov. 14	
Dearborn, Lawrenceville John Horberger, Lawrenceville	Monday, Nov. 9 Tuesday, Nov. 10	Billingsley. Flick.
Dearborn, Moores Hill R. T. Wilson, Moores Hill	Wednesday, Nov. 11 Thursday, Nov. 12	
Jackson, Mooney D. C. Bower, Mooney	Friday, Nov. 13 Saturday, Nov. 14	
Jennings, North Vernon P. B Ewan, Hayden	Monday, Nov 16 Tuesday, Nov. 17	Mrs. Elliott. Agee.
Harrison, Corydon David A. Jordan, Corydon	Wednesday, Nov. 18 Thursday, Nov. 19	Gwaltney. Agee.
Dubois, Huntingburg Eli B Hemmer, Holland	Friday, Nov 20 Saturday, Nov. 21	Agee. Mrs. Elliott.
Pike, Winslow J. D. Selby, Petersburg	Monday, Nov. 16 Tuesday, Nov. 17	Mrs C. N. Lindley. Miller.
Knox, Oaktown Capt. Ellis House, Bicknell	Wednesday, Nov 18 Thursday, Nov. 19	
Vigo, Terre Haute. Chas. Yaw, Pimento	Friday, Nov. 20 Saturday, Nov. 21	
Vanderburgh, Stringtown. Hall Walter Goldsmith, Evansville, R. R. 2.	Wednesday, Nov 18 Thursday, Nov. 19	Mrs. Carter. Burton.
Spencer, Chrisney C. C. Dawson, Grandview	Friday, Nov. 20 Saturday, Nov. 21	Burton. Prof Van Norman.
Noble, Avilla A. H. King, Avilla	Monday, Nov. 16 Tuesday, Nov. 17	Prof. Van Norman. Mrs. Meredith.
Elkhart, Goshen Ed. Bartholomew, Millersburg	Wednesday, Nov 18 Thursday, Nov. 19	Mrs Meredith. Burkhart.
Laporte, Michigan City W. T. Krueger, Michigan City	Friday, Nov. 20 Saturday, Nov. 21	
Dubois, Hillham S. W. Clapp, Hillham	Monday, Nov. 16. Tuesday, Nov. 17	King. D. B Johnson.
Washington, Hardinsburg A A Cravens, Hardinsburg	Wednesday, Nov. 18 Thursday, Nov. 19.	
Crawford, English John H. Jenkins, Magnolia	Friday, Nov. 20 Saturday, Nov. 21	
Hendricks Danville J J. Doane, Amo	Monday, Nov 23 Tuesday, Nov. 24	Agee. Martindale.
Marion, Clermont. Chas. T. Burgoyne, Clermont.	Wednesday, Nov. 25 Thursday, Nov. 26	
Madison, Elwood C. C. Mays, Frankton, R. R. 34	Friday, Nov. 27 Saturday, Nov. 28	

NOVEMBER—Continued.

Place of Meeting and Chairman of Institute.	Date.	Assigned Speakers.
Brown, Nashville John F. Bond, Nashville	Monday, Nov 23 Tuesday, Nov. 24	Miller. King.
Bartholomew, Elizabethtown W. E Springer, Elizabethtown	Wednesday, Nov 25 Thursday, Nov. 26	
Decatur, Westport B. F. Gaston, Sardinia	Friday, Nov 27 Saturday, Nov. 28	

DECEMBER.

Place of Meeting and Chairman of Institute.	Date.	Assigned Speakers.
Clark, Borden Wm. W Borden, Borden	Monday, Nov. 30 Tuesday, Dec. 1	King. Hart.
Gibson, Mt. Olympus Geo. Peed, Hazelton	Wednesday, Dec. 2 Thursday, Dec. 3	
Gibson, Haubstadt D. A. Epperson, Haubstadt	Friday, Dec. 4 Saturday, Dec. 5	
Lawrence, Bedford D. W Sherwood, Bryantsville	Monday, Nov 30 Tuesday, Dec. 1	Hines. Coleman
Orange, Orleans Oscar Hardman Orleans	Wednesday, Dec 2 Thursday, Dec. 3	
Floyd, Duncan Geo. Harrell, Duncan	Friday, Dec. 4 Saturday, Dec. 5	
Owen, Spencer E. L. Daggy, Spencer, R. R. 2	Monday, Nov. 30 Tuesday, Dec. 1	Mrs Conklin. Stockwell.
Monroe, Bloomington J. B. Kirby, Bloomington, R. R. 1	Wednesday, Dec. 2 Thursday, Dec 3	Mrs. Conklin. Burton.
Washington, Salem, F. J. Heacock, Canton	Friday, Dec. 4 Saturday, Dec. 5	
Wabash, Wabash Samuel Sholty, Wabash	Monday, Nov 30 Tuesday, Dec. 1	Billingsley. Miss G. Erwin.
Allen, Ft Wayne Geo. V. Kell, Huntertown	Wednesday, Dec. 2 Thursday, Dec. 3	
Steuben Orland D. C. Salisbury, Orland	Friday, Dec. 4 Saturday, Dec. 5	
Jay, Portland T. W. Logan, Westchester	Monday, Nov. 30 Tuesday, Dec. 1	Collins. Miss Meredith.
Adams, Decatur C. D. Kunkle, Monmouth	Wednesday, Dec. 2 Thursday, Dec. 3	
Lagrange, Lagrange C. N. Libbey, Lagrange	Friday, Dec. 4 Saturday, Dec 5	
Dearborn, Guilford Geo Smith, Guilford	Monday, Nov 30 Tuesday, Dec. 1	Mrs. C N Lindley. D. B. Johnson.
Franklin, Brookville Harry Stoops, Brookville	Wednesday, Dec. 2 Thursday, Dec. 3	
Fayette, Connersville Grant Williams, Connersville, R. R. 1	Friday, Dec. 4 Saturday, Dec. 5	Mrs C. N. Lindley. Flick.

DECEMBER—Continued.

Place of Meeting and Chairman of Institute.	Date.	Assigned Speakers.
Sullivan, Sullivan Richard Taylor, Farmersburg	Monday, Nov. 30 Tuesday, Dec. 1	Gwaltney. Lockridge.
Warrick, Boonville C. C. Ferguson, Boonville	Wednesday, Dec. 2 Thursday, Dec. 3	
Perry, Tobinsport J. J. Wheeler, Rome	Friday, Dec. 4 Saturday, Dec. 5	
Daviess, Washington P. McHenry, Washington	Monday, Dec 7 Tuesday, Dec. 8	Miller. King.
Martin, Loogootee Austin Porter, Loogootee	Wednesday, Dec 9 Thursday, Dec. 10	
Daviess, Alfordsville Owen McCord, Alfordsville	Friday, Dec. 11 Saturday, Dec. 12	
Elkhart, Middlebury H. O. Eldridge, Middlebury	Monday, Dec. 7 Tuesday, Dec. 8	Collins. Benjamin
Elkhart, Wakarusa Irvin S. Burns, Wakarusa	Wednesday, Dec. 9 Thursday, Dec. 10	
Noble, Albion J. M. Schermerhorn, Brimfield	Friday, Dec. 11 Saturday, Dec. 12	
Hamilton, Noblesville J. D. Bray, Noblesville	Monday, Dec. 7 Tuesday, Dec. 8	Burkhart. Burris.
Cass, Galveston J. H. Walker, Galveston, R. R. 1	Wednesday, Dec. 9 Thursday, Dec. 10	
Huntington, Huntington Oliver Kline, Huntington, R. R. 1	Friday, Dec. 11 Saturday, Dec. 12	
Vermillion, Dana J. F. Robinson, Dana, R. R. 1	Monday, Dec. 7 Tuesday, Dec. 8	Mrs. Meredith. T. J. Lindley.
Montgomery, Crawfordsville Wm. Beck, Crawfordsville	Wednesday, Dec 9 Thursday, Dec 10	
Tippecanoe, Colburn L. N. Jester, Colburn	Friday, Dec. 11 Saturday, Dec. 12	
Warren, Foster G. A. Beckett, Marshfield	Monday, Dec. 14 Tuesday, Dec. 15	Coleman. Mrs. C. N. Lindley.
Fountain, Veedersburg Smith Remster, Veedersburg	Wednesday, Dec. 16 Thursday, Dec. 17	
Montgomery, Linden G. D. Snyder, Linden	Friday, Dec. 18 Saturday, Dec. 19	
Tippecanoe, Odell G. A. Howey, Attica, R. R. 2	Monday, Dec. 14 Tuesday, Dec. 15	Whistler. Burnside.
White, Brookston John P. Erickson, Brookston	Wednesday, Dec. 16 Thursday, Dec. 17	
Tipton, Kempton W. R. Dunham, Kempton	Friday, Dec. 18 Saturday, Dec. 19	
Putnam, Russellville J. N. Fordice, Russellville	Monday, Dec. 14 Tuesday, Dec 15	Burton. Billingsley.
Putnam, Cloverdale J. B. Burris, Cloverdale	Wednesday, Dec. 16 Thursday, Dec. 17	

DECEMBER—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
Rush, Manilla C. C. Cotton, Manilla	Monday, Dec. 14 Tuesday, Dec. 15	Miller. Gwaltney.
Shelby, Shelbyville O. L. Coyle, Shelbyville	Wednesday, Dec 16 Thursday, Dec. 17	
Ohio, Rising Sun M. L. Harris, Rising Sun	Friday, Dec 18 Saturday, Dec. 19	
Jay, Bryant M. H Hannon, Bryant	Monday, Dec 14 Tuesday, Dec. 15	Somers. T. J. Lindley.
Henry, Blountsville J. H. Kilmer, Blountsville	Wednesday, Dec 16 Thursday, Dec. 17	
Hancock, Fortville Dr. E. Lamb, Fortville	Friday, Dec 18 Saturday, Dec. 19	
Benton, Oxford J. H. Howarth, Oxford	Monday, Dec. 21 Tuesday, Dec. 22	Prof. Skinner. Miller.
Boone, Thorntown E. J. Baker, Thorntown	Monday, Dec. 21 Tuesday, Dec. 22	Whistler. Billingsley.
Boone, Zionsville P. K. Hessong, Zionsville	Wednesday, Dec. 23 Thursday, Dec. 24	
Johnson, Nineveh John Calvin, Nineveh	Wednesday, Dec 23 Thursday, Dec. 24	Miller. Flick.
Union, College Corner, O T. J. Bartley, College Corner, O	Monday, Dec 21 Tuesday, Dec. 22	D. B. Johnson. Coleman.
Franklin, Fairfield J. E. McMahan, Fairfield	Wednesday, Dec. 23 Thursday, Dec 24	

JANUARY.

Newton, Brook W. H. Reed, Brook	Wednesday, Jan. 6 Thursday, Jan. 7	Mrs. Kline. Whistler.
Parke, Bridgeton J. R. Miller, Rosedale, R. R. 1	Wednesday, Jan. 6 Thursday, Jan 7	Mrs. Ross. Gwaltney.
Clay, Center Point R. L. Kennedy, Center Point	Friday, Jan 8 Saturday, Jan. 9	
Whitley, Hecla B. F. Cooper, Ormas	Monday, Jan. 11 Tuesday, Jan. 12	A. Johnson. Mills.
Starke, North Judson Fred Garing, North Judson	Friday, Jan. 15 Saturday, Jan. 16	A. Johnson. Mills.
Jasper, Wheatfield S. D. Clark, Wheatfield	Wednesday, Jan. 13 Thursday, Jan. 14	Whistler. Burnside.
Lake, Lowell O. Dinwiddie, Lowell	Friday, Jan. 15 Saturday, Jan. 16	
Delaware, Muncie A. W. Shoemaker, Daleville	Monday, Jan. 11 Tuesday, Jan. 12	Johnson, D. B. Mrs. C. N. Lindley,
Blackford, Hartford City J. E. Green, Hartford City	Wednesday, Jan. 13 Thursday, Jan. 14	
Dekalb, Waterloo J. E. Dilgard, Waterloo	Friday, Jan. 15 Saturday, Jan. 16	

JANUARY—Continued.

Place of Meeting and Chairman of Institute.	Date.	Assigned Speakers.
Warrick, Elberfeld W. A. Stitt, Elberfeld	Monday, Jan. 11 Tuesday, Jan. 12	Burton. Coleman.
Posey, New Harmony J. D. Wiley, New Harmony	Wednesday, Jan. 13 Thursday, Jan. 14	
Gibson, Hazelton Wm. Steelman, Hazelton	Friday, Jan. 15 Saturday, Jan. 16	Coleman. Mrs. Elliott.
Hancock, Greenfield Vard Finnell, Maxwell	Monday, Jan. 11 Tuesday, Jan. 12	Billingsley. Burris.
Henry, New Castle O. A. Stubbs, Lewisville	Wednesday, Jan. 13 Thursday, Jan. 14	
Grant, Marion A. A. Burrier, Marion, R. R. 1	Friday, Jan. 15 Saturday, Jan. 16	
Wells, Bluffton Matthew Park, Bluffton	Monday, Jan. 11 Tuesday, Jan. 12	Miss Erwin. Benjamin.
Randolph, Ridgeville L. L. Williams, Winchester, R. R. 5	Wednesday, Jan. 13 Thursday, Jan. 14	Benjamin. Nugen.
Boone, Lebanon J. F. Stark, Lebanon, R. R. 7	Friday, Jan. 15 Saturday, Jan. 16	
Bartholomew, Jonesville L. H. Wright, Columbus, R. R. 9	Monday, Jan. 11 Tuesday, Jan. 12	Lockridge. Hines.
Jefferson, Deputy Hiram Foster, Deputy	Wednesday, Jan. 13 Thursday, Jan. 14	
Clinton, Middlefork M. V. Unger, Middlefork	Monday, Jan. 11 Tuesday, Jan. 12	Burkhart. Mrs. Meredith.
Howard, Kokomo John Ingles, Center	Wednesday, Jan. 13 Thursday, Jan. 14	
Miami, Peru B. F. Nash, Peru, R. R. 6	Friday, Jan. 15 Saturday, Jan. 16	
Johnson, Franklin H. E. Lochry, Franklin	Monday, Jan. 11 Tuesday, Jan. 12	Gwaltney. Somers.
Putnam, Greencastle L. A. Stockwell, Cloverdale	Wednesday, Jan 13 Thursday, Jan. 14	
Parke, Rockville J. J. Thomas, Rockville	Friday, Jan. 15	
Marshall, Plymouth B. W. Ross, Teegarden	Wednesday, Jan. 13 Thursday, Jan. 14	Collins. Mrs. Estes.
Porter, Valparaiso J. W. Brummitt, Valparaiso	Friday, Jan. 15 Saturday, Jan. 16	Collins Prof. Van Norman.
Tippecanoe, Lafayette J. H. Bone, Shadeland	Monday, Jan. 18 Tuesday, Jan. 19	Coleman. Billingsley.
Clinton, Frankfort D. F. Maish, Frankfort	Wednesday, Jan. 20 Thursday, Jan. 21	
Carroll, Flora Wilson Eikenberry, Bringhurst	Friday, Jan. 22 Saturday, Jan. 23	

JANUARY—Continued.

Place of Meeting and Chairman of Institute.	Date.	Assigned Speakers.
Kosciusko, Warsaw Egbert Gawthrop, Milford	Monday, Jan. 18 Tuesday, Jan. 19	Mrs. Meredith. Burris.
St. Joseph, South Bend E. A. Metzger, Granger	Wednesday, Jan. 20 Thursday, Jan. 21	
Laporte, Laporte H. W. Henry, Laporte	Friday, Jan. 22 Saturday, Jan. 23	
Wayne, Hagerstown John Macy, Hagerstown	Monday, Jan. 18 Tuesday, Jan 19	Mrs. Kline. D. B. Johnson.
Randolph, Winchester I. J. Farquhar, Modoc	Wednesday, Jan. 20 Thursday, Jan. 21	
Steuben, Angola John Harpham, Pleasant Lake	Friday, Jan. 22 Saturday, Jan. 23	
Rush, Rushville W. L. Brown, Rushville	Wednesday, Jan. 20 Thursday, Jan. 21	Mrs. C. N. Lindley. Benjamin.
Union, Liberty T. C. Burnside, Liberty	Friday, Jan 22 Saturday, Jan. 23	
White, Monticello W. S. Peter, Monticello	Monday, Jan. 18 Tuesday, Jan. 19	Mrs Ross. Somers.
Jasper, Rensselaer M. I. Adams, Rensselaer	Wednesday, Jan. 20 Thursday, Jan. 21	
Lake, Crown Point E. H. Hixon, Crown Point	Friday, Jan. 22 Saturday, Jan. 23	
Fulton, Rochester N. A. McClung, Rochester	Monday, Jan. 18 Tuesday, Jan. 19	Mills. De Vilbiss.
Lagrange, Topeka J. N. Babcock, Topeka	Wednesday, Jan. 20 Thursday, Jan. 21	
Pike, Velpen W. B Anderson, Velpen, R. R. 24	Monday, Jan. 18 Tuesday, Jan. 19	Stewart. Hines.
Jackson, Seymour J. W. Luckey, Seymour, R. R. 1	Wednesday, Jan. 20 Thursday, Jan 21	
Lawrence, Pop Corn Quincie Rainbolt, Pop Corn	Friday, Jan. 22 Saturday, Jan. 23	
Miami, Macy Jacob Mathias, Wagoners	Wednesday, Jan. 20 Thursday, Jan. 21	Burnside. A. Johnson.
Porter, Chesterton C. O. Seamans, Chesterton	Friday, Jan. 22 Saturday, Jan. 23	

FEBRUARY.

Carroll, Deer Creek L. P. Shanks, Deer Creek	Monday, Feb. 1 Tuesday, Feb. 2	Billingsley. Hart.
Miami, Amboy Robert Ridgway, Amboy	Wednesday, Feb. 3 Thursday, Feb. 4	
Marshall, Culver C. W. Newman, Culver	Friday, Feb. 5 Saturday, Feb. 6	

FEBRUARY—Continued.

Place of Meeting and Chairman of Institute.	Date,	Assigned Speakers.
Delaware. Daleville A. W. Shoemaker, Daleville	Monday, Feb. 1 Tuesday, Feb 2	D. B. Johnson. Burkhart.
Hamilton, Sheridan J. P. Davis, Sheridan	Wednesday, Feb. 3 Thursday, Feb. 4	
Howard, Sycamore C. L. Cate, Sycamore	Friday, Feb. 5 Saturday, Feb. 6	
Madison, Anderson Walter Swain, Pendleton	Monday, Feb. 8 Tuesday, Feb. 9	Mrs. Kline. T. J. Lindley.
Marion, Ben Davis W. B. Flick, Lawrence	Wednesday, Feb. 10 Thursday, Feb 11	
Morgan. Mooresville O. P. M cey, Mooresville	Friday, Feb. 12 Saturday, Feb 13	
Cass, Logansport J. P. Martin, Logansport, R. R. 2	Monday, Feb. 8 Tuesday, Feb. 9	Stewart. Burris.
Pulaski, Pulaski C. L. Bader, Pulaski	Wednesday, Feb. 10 Thursday, Feb 11	
Whitley, Columbia City N. F. Watson, Columbia City, R. R. 1	Friday. Feb. 12 Saturday, Feb. 13	
Tipton, Tipton Will Ryan, Tipton	Monday, Feb. 15 Tuesday, Feb. 16	D. B Johnson. T. J. Lindley.
Warren, Rainsville O. W. Larm, Rainsville	Wednesday, Feb. 17 Thursday, Feb. 18	
Warren. West Lebanon N. W. Sla er. Marshfield	Friday. Feb. 19 Saturday, Feb. 20	
Posey, Poseyville J. H. Gwaltney, Poseyville	Thursday, Feb 18 Friday Feb. 19	Anderson. Hines.
St. Joseph, North Liberty	Tuesday, Feb. 16	A. Johnson. Burkhart.
St. Joseph, Walkerton	Wednesday, Feb. 17	
Pulaski, Medaryville	Thursday. Feb. 18 Friday, Feb. 19	

Additional Institutes Held.—Subsequent to sending out the regular schedule, as above, the following institutes were arranged for and held, under State auspices:

COUNTY.	PLACE.	DATE.	ASSIGNED SPEAKERS.
Allen	Ft. Wayne (Woman's Inst.)	Feb. 26-27	H. N Slater.
Clarke	Prather	Mar. 23-24	Gwaltney. Mrs. Lindley.
Clay	Bowling Green	Feb. 23-24	Martindale.
Dekalb	Corunna	Feb. 27	Mills.
Fountain	Attica	Mar. 19	Prof Skinner.
Huntington	Clear Creek	Nov. 6	Billingsley. Rankin.
Huntington	Huntington (Woman's Institute)	Dec. 19	Mrs Meredith.
Jefferson	Stony Point Grange	Mar. 17-18	Martindale.
Jennings	Hayden	Mar. 11	Mrs. Car er.
Montgomery	Ladoga	Feb 19-20	Prof. Lat a. Mrs. Bates.
Scott	Lexington	Mar. 15-16	Martindale.
Sullivan	Carlisle.	Mar. 30	
Switzerland	Quercus Grove.	Mar. 25-26	Billingsley.

Attendance at Institutes in 1903-04.—In the accompanying alphabetically arranged table will be found the attendance at the several Institutes during the season of 1903-04:

COUNTY.	PLACE.	NUMBER PRESENT.
Adams	Decatur.	230
Allen	Fort Wayne	197
Allen	Fort Wayne (Woman's Inst.)	370
Allen	Huntertown	279
Allen	Monroeville	76
Bartholomew	Elizabethtown	486
Bartholomew	Jonesville	188
Benton	Oxford	130
Blackford	Hartford City	375
Boone	Lebanon	218
Boone	Thorntown	182
Boone	Zionsville	96
Brown	Nashville	128
Carroll	Deer Creek	129
Carroll	Flora	258
Cass	Galveston	124
Cass	Logansport	362
Clark	Borden	236
Clark	Marysville	99
Clark	Prather (fall meeting).	138
Clark	Prather (spring meeting)	178
Clay	Bowling Green	410
Clay	Center Point	485
Clinton	Frankfort	900
Clinton	Middlefork	608
Crawford	English	140
Crawford	West Fork	281
Daviess	Alfordsville	185
Daviess	Washington	352
Dearborn	Guilford	312
Dearborn	Lawrenceville	207
Dearborn	Moores Hill	261
Decatur	West Port	550

COUNTY.	PLACE.	NUMBER PRESENT.
Dekalb	Corunna	590
Dekalb	Waterloo	375
Delaware	Daleville	230
Delaware	Muncie	400
Dubois	Hillman	44
Dubois	Huntingburg	462
Elkhart	Goshen	981
Elkhart	Middlebury	331
Elkhart	Wakarusa	763
Fayette	Connersville	166
Floyd	Duncan	194
Fountain	Attica	230
Fountain	Veedersburg	282
Franklin	Brookville	450
Franklin	Fairfield	312
Fulton	Rochester	826
Gibson	Haubstadt	570
Gibson	Hazelton	290
Gibson	Mt. Olympus	295
Grant	Marion	776
Greene	Bloomfield	129
Hamilton	Noblesville	178
Hamilton	Sheridan	280
Hancock	Fortville	144
Hancock	Greenfield	658
Harrison	Corydon	208
Hendricks	Danville	126
Henry	Blountsville	41
Henry	New Castle	1,212
Howard	Kokomo	350
Howard	Sycamore	162
Huntington	Andrews	312
Huntington	Clear Creek	315
Huntington	Huntington	135
Huntington	Huntington (Woman's Inst.)	437
Jay	Bryant	107
Jay	Portland	192
Jackson	Crothersville	47
Jackson	Mooney	121
Jackson	Seymour	199
Jasper	Rensselaer	115
Jasper	Wheatfield	178
Jefferson	Deputy	175
Jefferson	Lancaster	350
Jefferson	Stony Pt. Grange	287
Jennings	Hayden	160
Jennings	North Vernon	10[illegible]
Johnson	Franklin	1,150
Johnson	Nineveh	1[illegible]5
Knox	Bicknell	170
Knox	Frichton	135
Knox	Oaktown	494
Kosciusko	Warsaw	405
Lagrange	Lagrange	807
Lagrange	Topeka	225
Lake	Crown Point	650
Lake	Lowell	625
Laporte	Laporte	1,125
Laporte	Michigan City	100
Lawrence	Bedford	53
Lawrence	Popcorn	72
Madison	Anderson	712
Madison	Elwood	180
Marion	Ben Davis	356
Marion	Clermont	159
Marshall	Culver	215
Marshall	Plymouth	659
Martin	Loogootee	145
Miami	Amboy	217
Miami	Macy	190
Miami	Peru	375
Monroe	Bloomington	170
Montgomery	Crawfordsville	350

County.	Place.	Number Present.
Montgomery	Ladoga	325
Montgomery	Linden	206
Morgan	Mooresville	627
Newton	Brook	505
Noble	Albion	169
Noble	Avilla	92
Ohio	Rising Sun	132
Orange	Orleans	370
Owen	Spencer	198
Parke	Bridgeton	212
Parke	Rockville	570
Perry	Tobinsport	432
Pike	Velpen	260
Pike	Winslow	216
Porter	Valparaiso	695
Porter	Chesterton	190
Posey	New Harmony	680
Posey	Poseyville	412
Pulaski	Medaryville	195
Pulaski	Pulaski	299
Putnam	Cloverdale	343
Putnam	Greencastle	259
Putnam	Russellville	104
Randolph	Ridgeville	176
Randolph	Winchester	575
Ripley	Cross Plains	389
Ripley	Osgood	325
Rush	Manilla	338
Rush	Rushville	552
Scott	Lexington	125
Scott	Scottsburg	94
Shelby	Shelbyville	763
Spencer	Chrisney	510
Spencer	Richland City	681
St. Joe	North Liberty	636
St. Joe	South Bend	726
St. Joe	Walkerton	635
Starke	North Judson	269
Steuben	Angola	700
Steuben	Orland	150
Sullivan	Carlisle	88
Sullivan	Sullivan	63
Switzerland	Quercus Grove	199
Switzerland	Vevay	348
Tippecanoe	Colburn	378
Tippecanoe	Lafayette	231
Tippecanoe	Odell	334
Tipton	Kempton	4 0
Tipton	Tipton	888
Union	College Corner	363
Union	Liberty	644
Vanderburg	Stringtown	363
Vermillion	Dana	575
Vigo	Terre Haute	65
Wabash	Wabash	178
Warren	Foster	142
Warren	Raineville	290
Warren	West Lebanon	452
Warrick	Boonville	166
Warrick	Elberfield	214
Washington	Hardinsburg	92
Washington	Little York	158
Washington	Salem	345
Wayne	Hagerstown	700
Wells	Bluffton	677
White	Brookston	165
White	Monticello	819
Whitley	Columbia City	654
Whitley	Hecla	370

Average attendance per Institute	338
Aggregate attendance for the State	59,189

As stated in a preceding paragraph, the attendance is shown to be much larger than in any preceding year. It is believed, however, that the figures just given show more nearly the actual number of different persons present than by the method of reckoning heretofore employed, which has already been referred to.

Disbursements of the Institute Fund in 1903-04.—The disbursements of the State institute fund, from November 1, 1903, to June 30, 1904, are as follows:

Bills of county chairmen	$2,116 32
Per diem of assigned speakers	2,974 53
Traveling expenses of assigned speakers	1,728 60
Salary of Superintendent	666 67
Salary of Clerks	394 94
Postage	76 00
Printing and stationery	33 59
Supplies	27 76
Freight, express and telegrams	14 96
Miscellaneous	2 15
Unexpended balance	1,964 48
Total	$10,000 00

The unexpended balance for the year ending October 31, 1904, will be used in defraying the expenses of the superintendent's office and in holding district institutes, and the annual conference of institute workers.

Papers by Local Speakers.—On the following pages will be found a number of papers by local speakers, which we are permitted to publish through the courtesy of the State Board of Agriculture. These papers have been sent in by county institute chairmen, and are published substantially in the form sent in, without abridgment, editing or material change.

W. C. LATTA,
Superintendent Farmers' Institutes.

Purdue University, LaFayette, Indiana, June 30, 1904.

FARM DAIRYING.

BY MRS. B. D. COMER, RENSSELAER.

[Read before the Jasper County Farmers' Institute.]

Why is it in the great State of Indiana so little interest is taken in dairying? The blue grass is equal to and better than other States where dairying is a success.

While we can not be called a great dairy State, the most of the Indiana farmers do dairy work on a very small scale, and to make this even a success we should note the following points: Keep only such cows as are adapted by nature for milk production. There are but few farmers of Indiana that are awake on this subject. They simply say, if not in words by actions, "a cow is a cow." It costs no more to keep a good dairy cow than a worthless one. We are none of us working for amusement or pastime but for dollars and cents. Then why not take the pains to inform ourselves and then put in practice our information; so we may be able to gain dollars where now we are gaining cents. This can be done as has been demonstrated beyond a doubt. The proper manner of feeding and caring for the cows should be delegated not to the boy on the farm, as is usually the case, but to a man who has the ability to understand each individual cow and her preferences, and will cater to them.

The product sold, whether milk, cream or butter must be manufactured in the cleanest and best manner possible and proper marketing of the same. But when we realize how very few of us farmers have any conveniences or proper ones whereby we can properly handle our milk and butter we should not be startled at the fact that many of us do not make gilt-edged butter. To be more thoroughly convinced of this fact just step into one of your groceries and ask to see their butter. No two rolls alike—a mottled assembly indeed. You will then not be surprised at price received. The remedy for this is to be supplied with proper room and necessary appliances. The probable cost of room, $150; a separator, $100; scales, $5; barrel churn, $4; butter worker, $5; Eureka butter printer, $4.50; barrel of dairy salt, $2.50; and $4 for other small articles as bowl, hair sieve, ladles, etc., total, $285. I hear many penny wise pound foolish farmers saying, "Never can afford all that; would have to make butter the rest of your life to pay for them." This can all be paid for in one year or less with 10 good dairy cows. Many cows will produce 300 pounds of butter a year, at 20 cents per pound equals $60; cost of keeping, $30; profit, $30 on one cow, on 10 cows, $300.

These same farmers buy 20 head of steers at $40 per head, $800; feed $25 worth of grain and hay per head, $500; total cost, $1,300; sell the same at a loss of $400. And these same farmers sneer at the dairy cow which is a mortgage lifter and bread winner and say "too much drudgery for them." But dollars and cents are what count.

The majority of us farmers' wives think we already know all that is necessary to know about butter making and our butter is all O. K. One lady told me when I was contemplating the short course at Purdue (and by the way, she is one of our very common butter makers) if I would come over she would teach me for much less than a trip to Purdue. But if this same woman would take a course at Purdue, allow me to use the homely phrase, "she would get her eyes open." There nothing is guess work, but actual tests and experiments. How to take care of the milk and cream with the least chance for the accumulation of harmful bacteria. Proper manner of ripening cream, importance of churning at proper stage so as to get all the butter possible. Correct manner of churning and handling butter after leaving churn in regard to salting, working, printing and marketing. The professors deal with our lack of proper knowledge, peculiarities and inquisitiveness with great courtesy and kindness. Now most of our county women think they can not spend the time to take even a short course. But I would say to all who enjoy the work, go. You can not spend ten days more profitably, beside the enjoyment you get free. In dairying as well as any other undertaking the road to success is forward.

FARM POULTRY.

BY JOHN BUNNELL, GREENSFORK, IND.

[Read before the Wayne County Farmers' Institute.]

Poultry on the farm of the average farmer is usually regarded by the farmer as one of the insignificant parts of farm business.

Few people comprehend the importance of the poultry industry, yet strange to say, the supply, enormous as it is, does not keep pace with the demand.

I do not desire to deal with dry statistics only to a small extent, but it is shown by government reports biddie and her product the past census year amounted to over 281 millions of dollars.

"The investment has yielded an income of 400 per cent." The use of the incubator has made it the duty of the hen to devote her whole time to the production of eggs. The egg production of this State alone amounted to something over seven millions of dollars. Certainly such an industry is worthy of some attention.

However, we must admit the poultry industry is making rapid strides forward, and it is no uncommon thing now to see a flock of well bred birds on the farm.

Farmers and farmers' wives are awakening to the fact, with eggs and poultry the price they are and have been, that they no longer can consider poultry on the farm a side issue. The poultry industry some few years ago very little attention was paid to it by the general and State governments; today the bureau of animal industry is making extensive experiments, and issuing regularly valuable bulletins devoted to poultry exclusively, and near thirty State colleges are conducting poultry plants, on which they are making systematic study of poultry plants and egg production, including the problem of successful incubation and brooding by both natural and artificial means.

One of the peculiar features of the average farmer's flock is the greatness of variety. If you travel far enough you will find every breed in the standard from the Asiatics to the Bantams. But this flock, glad to say, is decreasing in number and giving way to a more valuable one.

The theory that you must have a variety of crosses for good egg production is a theory of the past, for the two-hundred egg hen and the hens that have made the best egg records are line bred and pure bred hens. From a full blood fowl you are able to command a better price for eggs for hatching. There is a demand for your young cockerels at a better price than can be obtained of the poultry buyers; you have two markets for your eggs; you lose nothing in weight, but gain in color and flavor of flesh; you lose nothing in the feed bill, as the barnyard fowl will eat as much as the pure bred fowl.

In the selection of a breed, one should be governed by the demands of local or near by markets and breed the most suitable to your fancy. If it is eggs you want, then there is none equal to the leghorn breed. If for the table, then some of the larger breeds would be preferred.

Let us take, for example, the single comb white leghorns, one of our best egg producing birds, the standard description, bright red comb and eyes, and yellow legs, in contrast with their pure white plumage, surely no one could contend that there is so much pleasure in a flock of barnyard fowls.

The fact of the matter is that the standard bred fowl will lay more and larger eggs, develops faster, and is more valuable for the table than is the mongrel.

The most of you here are not interested in fancy poultry, but practical poultry—poultry from which the greatest amount of profit can be derived. I have no hesitancy in saying the standard bred poultry is more profitable than the mixed breed. Yet some think that the more attractive a fowl is in color, appearance and form the less valuable it is for egg production or table use, and that the hen with no shape or color is the practical fowl.

The average domestic hen during the past census year produced less than three dozen eggs per hen. As it is only a matter of proper housing and feeding to make an ordinary hen produce ten dozen eggs in a year, and there are records of large flocks that average more than fifteen dozen eggs for each hen, it will be seen at once that care makes a great difference in the returns that may be desired from keeping poultry. Poultry raising as a business may be conducted profitably. That there is money in it can not be doubted, but knowledge is necessary to succeed. Ninety per cent. who enter it fail, most always on account of lack of knowledge of the small details of the business.

To the average one who is tied to his office, store or place of business, looks upon poultry raising as being a big paying, get rich, easy job. If such is your thoughts, you had better by far stay out of it. While it is very fascinating and you once get the so-called hen fever, nothing but a trial of it will cure you, and then if you are unsuccessful you will think another trial and you would be successful. Such a class as these are the ones who help to swell the per cent. of failures.

But such is the case in all lines of business. Men and women who have made a success in this business have put heart and soul into their work, and individuality counts many points in this work. In my opinion the trouble with egg production with the average farmer is lack of proper housing and feeding, two of the most important things concerning your flock. These two things are necessary to add to your profit. There is no excuse for not having a comfortable poultry house; there are materials within the reach of every one able to own a flock of poultry. No matter how her home may look, if it is so built that the nipping frosts and winter can not freeze her comb, or give her a chill during the winter nights. The important points about poultry houses are sunshine, pure air and warmth, and the greatest of these is warmth. No matter how careful hens are fed, they must have comfortable sleeping quarters if they are expected to produce eggs in winter when the price is the highest.

Do not expect biddie to produce feathers, blood, flesh and eggs on no feed and a cold place to sleep. As to feed, a little study and knowledge of the composition of an egg will be of great value to you. See what she must be fed to help produce it. Bring about as near as you can the feed and condition of things in winter she has when she produces her full quota of eggs, and lay she can and will, for it is nature for her to do so.

And in conclusion let me say, let us be for better poultry and more of it.

ADAPTABILITY.

BY CHAS. S. MUMMA, DECATUR.

[Read before the Adams County Farmers' Institute.]

Every occupation has requirements peculiar to itself and he who would succeed should first determine whether he is mentally or physically able to meet the demands his chosen profession may make upon him. "Find out all you can and say as little as possible" was the advice given a young man entering a bank as clerk. If this be good advice then the young man having an ungovernable propensity to "talk" could not succeed as a bank clerk. Farming is a business as much as banking and the successful farmer must be a business man as much so as the banker and must be adapted to his business as much so as any other business man. The principle will apply with equal force in the different departments of agriculture. The successful horseman is a horseman from boyhood and the shepherd is born not made. The mistake which is responsible for a large per cent. of the failures in all professions is this lack of adaptability. Hundreds of people toil year in and year out and get meager returns for no other reason than that they are trying to do that for which they have no possible qualifications and which nature never intended them to undertake. If the boy has a mechanic's, doctor or lawyer's head don't compel him to be a farmer. He won't thrive unless perchance he have the rare faculty of adapting himself to his suroundings.

But why is this so? First of all he is at war with himself hence not in a mental condition to enjoy his work. The man who follows the plow and has his mind fifty miles away in some doctor's office or machine shop can't possibly do justice to his work, it's uphill all the time. With the best of men there comes times that test their perseverance and the man who would rather be at something else stands a poor show indeed. By allowing the most trival obstacles to turn him aside he soon loses both interest and desire, and becomes sour and fault-finding. He is bound to neglect his business and very soon finds himself seeking for an excuse to justify his negligence while at the same time trying to make people believe he had done all human power could do. If it rains that was the particular day he intended doing this and so. He is full of plans of what he intends doing but that is as far as he ever goes. He talks about financial panics but in all probability he had nothing the panic cared to molest. He may be well enough informed but his cyclopedia contains very little that is of any value to his business. A man of extremes is never willing to make sacrifices his more fortunate neighbor makes but always ready to accept that selfsame neighbor's generosity. And if it is hinted to him that he make a little more effort he at once declares this to be a cold, selfish world. He is full of plans that he is never known to execute and can give advice by the hour that is unsafe to follow.

What a striking contrast does the man present who is adapted to his business. He is a man of opportunities instead of excuses. Never in a hurry to tell what he knows but when he does talk his advice or opinion are always in demand. When he makes a failure he takes the largest share of responsibility upon himself. Instead of allowing himself to be driven he drives his work. His farm reflects his character. A man of this kind is an inspiration to a whole community.

But another consideration. When the season is favorable, prices good and times prosperous any man of reasonable intelligence may be moderately successful. But prosperity does not always reign. All branches of business are subject to their "ups" and "downs" and the farmer is no exception. Its the trying times that puts men to the test or, in other words, locates the real man. Then it is that adaptability counts.

While the one man, by lamenting and complaining allows himself to be cornered by adversity the other is looking ahead and by making a virtue of necessity bends his energy towards keeping out of difficulty. It is cheaper and more satisfactory to keep out of trouble than to get out. Nowhere in the world does this principle apply with more force than on the farm.

There is one rule that will apply anywhere. He who would succeed must put himself in a position to do whatever [right thing] is necessary to be done to attain a certain end. And no man is so well equipped as the man who has a good stock of adaptability on his side.

NATION AND STATE AID TO PUBLIC ROADS.

BY T. G. DAY, CORRECT.

[Read before the Ripley County Farmers' Institute.]

Mr. Chairman, Ladies and Gentlemen:

Section 8 paragraph 7 of the Constitution of the United States gives the power to establish postoffices and post roads. Have they ever done this? All of us feel the advantages of our daily mail, and in most of the cities they build grand buildings, for we the government to handle our mails, and in others, as your city, we rent.

But did we ever take charge of the roads? Through our county of Ripley the government gave 640 acres of land for every mile of the Michigan road that was grubbed and graded 100 feet wide ready to put the mettle on for a macadam road similar to the great National road, which the poet Whittier, in Barbara Fritchie, calls a great broad highway. They spent over $7,000,000 on this one road when we were a small people, and we still talk of the old State and county roads. The first railroad of our State from Madison to Indianapolis was built by our State, and I recollect when John Brough was president of that road (afterwards Governor of Ohio) put in it was said to wreck the road to get it out of the hands of the State and you can see today around Clifty Falls near Madison, Brough's folly, where he squandered our money to bankrupt the road.

They built canals and in every way helped transportation. But far-seeing men saw the great chance for monopoly through steam roads and had our government quit road building.

Now we want to get back to first principles. Sometimes the old way is the best, and the coal famine last winter was an eye opener to what a monopoly can do, and many leading men said the government must take charge of the means of transportation for the good of all the people, as all civilized countries but ours have done.

But we common people are only asking the government to aid us to the extent of the amount they are spending on buildings in the large cities and rivers and harbors. We are the wealth producers. (All values come from labor has been known for centuries.)

But this wealth has accumulated in the cities and we ask a return in this much to enable us to produce more and cheaper. To this end we ask you to petition, write letters to your member of Congress and Senator to pass the Brownlow bill at the next session of Congress.

In many States now the State gives one-third, the county one-third and township one-third, and the State has competent men to say how the roads shall be built. We don't want everything done for us. Let us be partners, what we don't work or pay for we don't appreciate or get the good of. In union is strength and we want a union of all in the cause of better roads and a better road system.

Since writing this I have read the speeches of the Hon. Wm. J. Bryan and President Roosevelt at the good roads convention at St. Louis last April. They are both of one mind on this question. The need of National and State aid for good roads is general. All say it is not right to put this all on the farmer. That all are vitally concerned in this. Do you know the enormous cost of wagon transportation of the United States? It is more than all of the railroads, steamships, canals and electric roads. We are working at a disadvantage that no other nation has, all are away ahead of us on roads. John M. Stahl, editor of the Farmer Call, and one of the farmers that does some things, Secretary of our Farmers' National Congress, of which each county chairman is a delegate and some States pay their expenses to attend, when Mr. Stahl went to figuring out our cost of wagon hauling and loss by bad roads he was afraid to give it out, afraid he would be laughed at. He says it is over $900,000,000 yearly, and if all the road improvement that could be made profitably was made, we would save $500,000,000 a year. We could start farmers' banks on this. Send to Hon. Martin Dodge, Agricultural Department, Washington, D. C., and get bulletins on the roads. How they make the best of roads in New Jersey with but four inches of macadam. General Roy Stone says we should have postal saving banks as all civilized and half the half-civilized nations do. This would bring the money out of the old socks and put it in circulation, and make all of our roads on a long time low interest bond and make a safe investment for the money of poor people. With this we could build the Panama canal.

Push the Brownlow bill!

THE BEST CROP ON THE FARM—BOYS AND GIRLS.

BY MISS ETHEL CARR, ROME.

[Read at Tobinsport Farmers' Institute.]

All other crops on the farm can be and should be made to contribute to the advancement of the boys and girls. In the early days of Pennsylvania when the land was yet uncleared and was owned by farmers, in most every farmhouse might be found, somewhere around the old clock, or in some other safe place, an old earthen teapot. This was the family savings bank. All the money that could be spared was placed in this. How happily they sang at their work, and how carefully the housewife beat the fragrant butter and printed her initials on it with greatest care, and how cheerfully the farmers tilled the land in order to have an extra amount to put in the old earthen teapot.

What good was derived from hoarding this money? This work was all done with a noble end in view. This money was saved for a noble purpose. William was taken through college, and all Mary's plenishing when she was married came out of the old tea pot. He must enlarge his farm acre by acre for John. "Harry had a gift of gab;" he must be helped into the law. There was a feeling, almost universal then, that one son should be given to the work of the Lord, so Joe must have his schooling for the ministry. This old teapot held countless comforts denied, countless innocent pleasures given up. The farmer and wife starved their lives to put money in this "old time bank." But all work is better which is accomplished for a noble purpose. The boys and girls were made to realize their importance on the farm. They thought it right they should help their parents until they were of age. The farmer's daughter was called accomplished, who could care for the dairy most skillfully, make the best jellies, preserves, etc., sew the best rag carpets, cook the most delicious food and best manage a home in every way. The son who could be trusted to take his father's place and discharge the duties with honor was called "a rising young man." They realized that great responsibilities rested upon them. Now, sons and daughters of well-to-do farmers are traveling abroad, some are leaving the farm seeking a broader life in the distant city as stenographers, salesmen and saleswomen, leaving the best place in all the world, the broadest life, a country home.

Mothers and fathers are left at home, worrying with ignorant hired help, oftentimes. Where lies the cause of all this? Why are we losing the benefit of this best of all crop on the farm, the boys and girls? Do we realize, as of old, the importance of them? Are they as forcibly reminded of their importance?

Since the Civil War there has been an existing aristocracy among the farmers. Is it wrong to say that money occupies first place now? Yes, we work for money now. They worked for money then. What was the money used for then? The education of the boys and girls. What is the money used for now? The education of the boys and girls. Never was it considered more necessary than now to educate them. Never were people more interested in having large farms for their children. Is the purpose the same as in earlier days? They are educated and still they leave us. Where lies the fault? Are they sent to colleges and universities in order to be better men and women? Are they constantly reminded of this fact? Or is it all for the position they may occupy? They may then, with all their lands and learning, be on an equal with the aristocratic Mr. Loran's sons and daughters. Formerly education was given for the good they might afterward do. They were educated to be a help, also an ornament, to the home. The moral, mental and physical side were all considered. Money and position occupied a place further down the list. Let education still continue, but let it be for a nobler purpose than money and position. What are they but an empty bubble?

"Great fortunes steal off in the night."

A horse is made no better by being kept in a cabinet made stall, fed from a marble trough, and fitted with silver trimmed harness. So with all other crops on the farm. But the boys and girls are benefited by being surrounded by an atmosphere which will benefit them physically, mentally and morally.

"If we work on marble it will perish, if we work upon brass time will efface it, but if we work upon immortal minds, if we imbue them with principles, with the just fear of God and love of our fellowmen, we engrave on those tablets something which will brighten all eternity."

"THE POETRY OF FARMING."

BY J. S. ROSEBERRY, DEPUTY.

[Read before the Scott County Farmers' Institute.]

The title of my subject seems to indicate that apiculture or bee-keeping belongs not so much in the realm of the necessary and important as to that of the esthetical—the beautiful in agriculture.

As a matter of fact, however, it belongs to both, for while bee keeping has been called "the poetry of agriculture," and perhaps correctly so, it has also a practical and profitable side.

It has been said by writers on the subject that the amount of honey gathered and stored as compared with the amount wasted or left ungathered is as one to one thousand, or, in other words, only one pound is saved where one thousand are lost for want of bees to gather it. Surely here is a wide field for honest, pleasant and profitable pursuit.

It is a pleasant occupation because intelligent bee-keeping requires a study of the habits and instincts of this interesting little worker which is both instructive and fascinating.

As to its profitableness I doubt if there is another branch of agriculture which pays a larger per cent. on the capital invested than that of apiculture.

It is not an exaggerated estimate to say that a strong, thrifty colony of bees will yield one hundred pounds of surplus honey in a single season, in addition to the natural increase in bees, which should amount to at least one colony.

But to be entirely within the bounds of moderation, let us estimate the amount of surplus honey, say fifty pounds, which at the low estimate of ten cents per pound, would amount to five dollars. Then estimate the cost of the parent hive at ten dollars and the value of the young colony at the comparatively low value of five dollars, and we have a profit of ten dollars on an investment of ten, or 100 per cent., and the only expense to be deducted is the cost of one extra hive and a very little labor.

Now can you think of any other business outside of owning stock in the Standard Oil Co. itself that pays as well?

But perhaps some one will say, "that looks well on paper, but I have serious doubts as to its practicability." In reply I beg to say to any such doubter that this is only one of the many wonderful things connected with the business of bee-keeping. As an example, allow me to allude to just one of these wonders—that of system of government which prevails in a colony of bees, for they have their system of government just as we have under "Uncle Sam," and in some respects their system resembles ours very closely, although, to be more exact, it is what might be called a limited monarchy. First, there is the queen who, while she is royalty personified, both in appearance and demeanor, yet "Her Majesty" has little to say in colonial politics. She is a mere figure-head. She differs, however, from heads of other limited monarchies in this: she is the prolific mother of the whole colony. Secondly, we have the workers upon whose diminutive shoulders rests the responsibility of government, and providing for the entire household. Like the people of our own government, they govern. Not even the queen, with all her royalty, dares do anything without the consent of the workers. They decide how many swarms shall be sent off from the parent hive and when they shall go, and often exercise bad judgment in sending off so many that the parent hive becomes so weakened as to be almost worthless.

It is here that man with his superior wisdom steps in and by training and restraining guides the colony in the way of peace and prosperity.

Thirdly, there are the drones, which are simply the males of the colony, and as a consequence are of prime necessity.

Of course they do not work, for nature never intended that they should, but they can hum more loudly than either queen or worker and therefore create more—noise, do you say? You forget this is the poetry of agriculture—they create more music, if you please. Let us be careful, then, how we say anything in disparagement of the drones, for they serve their mission in life just as nature intended they should.

There are other equally wonderful things to be learned in the study of apiculture, all of which are susceptible of the clearest and most convincing demonstration. I cite this only as an example.

Of course, it is the chief mission of the honey bee to gather and store honey, that most delicious and healthful of all sweets, and it is here that the apiarist reaps his greatest profit, but in addition to this it serves other necessary purposes as well.

It seems to be a well established fact that bees are necessary to the successful production of many varieties of fruit, especially apples and pears. It has been demonstrated that the finest specimens of fruit are produced by means of cross-pollination of the fruit blossoms.

In the Year Book of the United States Department of Agriculture for the year 1898, pp. 174-175, after a somewhat extended discussion of this subject, the following conclusions, among others, are reached:

(1) Many of the common varieties of pears require cross-pollination, being partially or wholly incapable of setting fruit when limited to their own pollen.

(2) Cross pollination consists in applying pollen from a distinct horticultural variety; that is, one which has grown from a distinct seed, and not in using pollen from another tree of the same grafted variety, which is no better than that from the same tree.

(3) Self-pollination takes place, no matter whether foreign pollen is present or not. The failure to fruit with self-pollination is due to sterility of the pollen, and not mechanical causes, the impotency being due to lack of affinity between the pollen and the ovules of the same variety.

(4) Varieties that are absolutely self-sterile may be perfectly cross-fertile.

(5) Self-fecundated pears are deficient in seeds and the seeds produced are usually abortive. The crosses are well supplied with sound seeds.

(6) The normal typical fruits and in most cases the largest and finest specimens from both the so-called self-sterile and self-fertile varieties are crosses.

(7) The practical conclusions drawn from the experiments with apples are the same as those from the work on pears.

(8) The number of insect visitors in any orchard determines to a great extent the amount of cross-pollination carried on.

But perhaps some one will ask, What has all this to do with beekeeping? Simply this: After having shown that the production of the finest specimens of fruit is due to cross-pollination the report further says:

"Pollen is transported from tree to tree by bees and other insects and not by the wind." And again, on p. 180, "Honey bees and other members of the bee family are the best workers in cross-pollination."

It will thus be seen that apiculture has its profitable and useful side as well as the poetical.

Poëtry can not well be described. Like music, it must be heard, experienced to be appreciated, to even know what it is, and even then you can not describe it. Language fails you. Imagine an ideal day in June, that loveliest season of the year. The very air all fragrant with the breath of flowers, the trees clothed in verdure and the earth covered with a carpet of beautiful green. The birds singing, the very atmosphere rife with the sound of music and laughter. All nature in one harmonious blending of beauty and grandeur, and yet there is something lacking—the little honey bee as she flits from blossom to blossom humming her sweet music as she gathers the precious nectar that contributes so largely to our comfort and happiness, completes the picture.

What is more poetic, what appeals more strongly to the imagination, what is more emblematic of an ideally happy and prosperous condition than the scriptural phrase "A land flowing with milk and honey?" But what is perhaps most inspiring is a practical study of the habits and instincts of this remarkable little insect. It is here that we are enabled to cultivate a closer acquaintance with her. It is here that we may make of her our intimate friend, but in doing so we must needs use some discretion and tact lest we learn to our cost that undue familiarity breeds contempt, and in that case we would be ready to join with James Whitcomb Riley when he sings:

"Yes, the bee sings, I confess it.
Sweet as honey—Heaven bless it.
Yit he'd be a sweeter singer
Ef he didn't have no stinger."

THE WOMAN ON THE FARM.

BY MRS. MAGGIE NILLIS, WEST FORK.

[Read at West Fork Farmers' Institute.]

In your busy life did you ever stop to think of the vast difference in the life of the woman on the farm and the woman in towns. Sometimes we feel discouraged and think our lives are lives of slavery and almost wish we lived in town. But after all is it not the town woman who is indeed the slave? She is a slave to fashion's folly, a slave to her pride, a slave to the opinion of the multitude around her, and a slave to her own idleness. As idleness is the mother of sin it is then not alarming that the young business man goes to the farms to seek modesty and chasity in the country maiden. But of the town woman I will say no more. My interest is with the farmers' wives and daughters, or the woman on the farm. What I have to say is mostly to the farmer's wife or she who expects to become one. Did you ever think what power you hold over your husband's financial affairs? In what ways do you hold this power? By economy or the reverse, by industry or the reverse, by the use of common sense or the reverse, and in many, many ways. Just now I think of a certain instructor in one of our State normals, a maiden lady. After living several years in spinsterhood she took unto herself a husband. Of course, before this, she had had her own sweet way in everything. In a guying way her friends reminded her that she must not only love but obey, that the husband is the head of the household and family. To this she replied, "Yes, I know, but if man is the head, woman is the neck that makes the head wag" and went on her way rejoicing. So remember though man is the head of the family woman plays no small part in the race of life. In what way can a woman help by economy? In a thousand ways—and more likely you can remember the old saying—"A woman can throw out with a teaspoon as fast as a man can shovel in with a scoop." I believe, in one sense, this is true. If there are potatoes left from one meal, instead of putting them into the refuse make a salad of them for the next meal. Use your bread scraps and crusts in toast or pudding. If the skirt you purchased last fall is beginning to look slightly faded, if the goods will allow, rip the seams, turn the other side out, purchase some suitable trimmings and by so doing wear a fresh, clean skirt.

How can a woman help her husband or father by industry? On the farm the woman has an excellent chance to help in the financial affairs of the home. Says one—"I don't believe in women working out, I have enough to do in the house." I don't mean, my good woman, that it is necessary for you to work out, to drive the team and swing the scythe in order that you help make the living. But I do say it would be better for you to do that than some things that are done. This same woman who complains that she has enough to do in the house will spend an afternoon with the neighbor Jones's wife finding out how Mrs. Brown got the money to pay for that beautiful hat she wore last Sunday. Then before the week is out she will go to Mrs. Brown's to learn where neighbor Jones's oldest daughter purchased her wedding dress, where her husband intends to settle, what he does for a living, whether he has any bad habits, in fact anything and everything she can find out. Yet, she has enough to do in the house. She had far better be at home at such times stowing the pumpkins away in the cellar, making the kraut for winter use, husking corn for the hogs, doing anything she could to help along. I was walking in the garden sometime ago with a certain woman, a farmer's wife. Her husband was with us. I'll call the farmer John, the wife Mary. We came to a place where I had planted over fifty hills of melons. Some of these were growing nicely and some were not yet up. I explained to Mary that I had planted some late for late use. That last year I planted all at the same time and we quit eating melons a month before we might have done had we planted part of them late. She turned to her husband and said, "John, why couldn't you do that. Your first planting didn't come up. Why couldn't you plant some late?" I could not help thinking, "Why couldn't you, my helpless woman, while he is busy with something else?"

How can we help by the use of common sense? Does common sense teach you to be afraid of spoiling your hands? Does it teach you that a few freckles or a little tan is in any way injurious to you? Does it teach you that work of any kind, if it is honest, is not honorable? It does not. Know your husband's business. Know what's going on outside. I once asked Mary how much millet John sowed that season. "O! I don't know, quite a lot I think, I never know much about what he's doing." Poor John! No one to take an interest whether he does anything or not. How many farmers' wives in this audience know how much the fall installment of taxes were and where the money came from that paid it? Don't complain if John seems to take no thought of your household worries and the care of the children when you take no thought of the numerous things that worry him. Know how much is paid out for bonemeal, grass seed, etc. Know how much clover he expects to sow next spring and where it is to be sown. When it is sown take an interest with your husband in the result of the sowing. How much injury the frost and drouth did it. Know how many fat hogs he expects to sell this fall and watch the rise and fall of the price. Read the papers. Know what's going on in the world around you, just as you expect of your husband. Know if there are any debts to be paid off or interest to pay. I once knew a woman, who, day after day, loaded her table with an overabundance of good things to eat, and, I suppose, lived accordingly in other ways. When her husband died she found out that all she would ever be able to accomplish would be to pay the interest on her debts. Had she known years before her husband's circumstances they might have known a free existence for years instead of being always enslaved by debt.

Be your husband's partner in the fullest extent. Confide in him about the things pertaining to the household and children. Tell him of the pleasures and worries that he knows not of and lead him to confide in you with all sincerity. I have in mind a certain home circle. The husband and wife had been farmers ever since they were married. He came in one evening from a certain gathering of young and old where he had been on business. They were sitting around the evening lamp. Lifting his eyes from his paper he turned to his wife—let me mention though that he had no habits of drinking, smoking, etc., so common among men—"Mary, I spent twenty-five cents today." "How, John?" "The boys were all so good to me and insisted that I take dinner with them so I thought it my duty in sociability to pass the cigars around so I purchased a quarter's worth of cigars for the boys." "You did just right, John, just right." Some may say "Tied to his wife's apron strings." It may be so, but possibly, surely he doesn't care to be loose and isn't she, at the same time, hanging lovingly and confidingly to his coat? Let them so continue and if they are as honest with the world as they are with themselves they will surely prosper, though it may be slow.

Last of all and first of all be a woman. Be what God intended, a helpmeet for your husband. Do all you can in sincerity and love to bring the home to its ideal place and, after life's joys and cares are over, let it be said of you—"Well done, thou good and faithful servant, thou hast been faithful over a few things, I will make thee ruler over many."

MAKING THE MOST OF FARM LIFE.

BY MRS. MARY D. BROWN, COVINGTON.

[Abstract of a paper read before the Fountain County Farmers' Institute.]

Making the most of farm life in any sphere should not consist in the gaining of wealth alone; but that we should find the fullest, truest, happiest living.

And in the great rush and hurry and struggle of our complex, modern life for wealth and display, place and power, we are blind to the beautiful in nature and art. We are lost to the sublime in sentiment and religion. This neglect of the finer graces of the mind and heart is a supreme need of our country life today.

We need to simplify living, and despite the clamorings of fashion, be brave enough to adopt plain, substantial and sensible clothing; and by these means create leisure for reading and self culture, come into closer social contact with those whose lives touch our own, stir up the sweet springs of sympathy and friendship, and draw out what is noblest and best.

Since a real home is the best thing that life has to give the greatest thing of our lives should be the making of a home; such a home as we should delight to dwell in is far easier of attainment in the country than in the city. We should adorn and beautify this ideal home, and its surroundings, and make it attractive for the children. For what is more dreary than a farm home in a bare spot, with no touches of nature, and no evidence of tender care about it? The children in such a home are apt to get out into the world as soon as possible. True, they may emerge from such a home, and narrow work bound youth into noble manhood and womanhood; but life will be sweeter, fuller, and happier if there has been beauty, and love, and tenderness along the way.

Hardy shrubs and vines, our native wild flowers and ferns may be had in profusion. Once planted, they make of the farm home, "a thing of beauty and a joy forever."

The love of the beautiful is a power everywhere, let it have sway on the farm. Every farm home should have an abundance of small fruits. A farm without fruits is like a wilderness in a desert, while a berry patch well-tilled is a health giving, happiness-producing investment, which helps to make country life delightful.

Much has been said about the drudgery of farm life and the discontent of farmers' sons and daughters; but work is not drudgery if we love to do it. It is the fret and worry and discontent that makes any work irksome. Energetic, interested, enthusiastic work of any kind is not drudgery.

Much sympathy is being wasted on "The Man With the Hoe." Many a farmer's son or daughter sighs and longs for city life. In the city they struggle miserably and hopelessly as an underpaid and overworked nobody, when they might be enjoying the broader, freer, safer, better life on the old home farm.

Many a treadmill merchant in the city is homesick for the green fields and sunny skies of his boyhood days, and longs to rest his tired head in the lap of Mother Nature.

"Ay! he's the man to pity and point the tale of woe,
Who hath no place to plant a seed and help to make it grow.
Whose heart is brick and mortar, whose life is soulless barter,
A million miles from God's sweet world,
The man, without the hoe."

The average farmer of this section should cultivate a smaller area and cultivate better. The smaller farm can be brought to a higher state of fertility and by thorough tillage the effects of drouth may be at least partially overcome.

How many farmers in Fountain County cultivate to the point of the "dust mulch" to insure a crop in the times of drouth? Yet, in such cultivation lies the only hope of a crop without rain.

We must utilize the waste land on the farm by making permanent pastures for stock and yards for poultry. Then remove unnecessary fences; thus reclaiming fence rows and weed patches for valuable crops.

By intensified farming, simplified living and careful economy the farmer and his household may find time for reading and self culture.

Farm work should be so planned, systematized, and so energetically pursued, that the sons and daughters may be given leisure to find rest and amusement in favorite sports and games, to read a good book, to swing in the orchard, to climb up into the old linden tree that stands in the pasture lot, to stroll by the brook and become familiar with its winding way through the meadow and into the woodland beyond, or lie upon its mossy bank and "gaze into the summer sky, and watch the clouds go sailing by, like ships upon the sea."

In after years when far from the old home and its associations,

> "Fond recollections will still bring to view,
> The orchard, the meadow, the deep tangled wildwood,
> And every loved spot which their infancy knew."

Then make the farm home attractive, bright, and cheerful to the end of life's brief journey, stir up the live coals and keep them burning while they will, and let memories of that good old home flit through the brain until the last embers go out.

AN IDEAL FARM.

BY FRANK DILLON, ROCHESTER.

[Read before the Fulton County Farmers' Institute.]

Much to my surprise I received notice that I have been placed on the program by the Committee of this Institute to furnish a paper on the subject "An Ideal Farm." Now just why I should have been selected for this purpose I am unable to say, as my whole life has been spent, with the exception of the last few years, not as a farmer but as a mechanic. However, I will do the best I can. In 1897, land being very cheap, I was enabled to purchase a farm and the first one I ever owned. It having no buildings of any consequence I went to work to improve it, and while if it were to do over again I would make some changes, yet I am very well satisfied. My first move was to erect a barn to save the first crop. This I built 40x60 with 20-foot siding, and this furnishes plenty mow room. Next a dwelling in keeping with the other buildings. Next a summer kitchen and fruit house combined; next large, roomy poultry house, plastered and all of the south side, which is 40 feet in length, is glass. Two rooms below, one for roosting, other feeding and laying in winter. A part of this building is story and half, giving us a good room above, which is very useful for keeping feed and as a store room for many other articles. Next is two double corn cribs with a capacity of two thousand bushels. Next comes sheep house, 22x30, using 12-foot siding, which gives us plenty mow room to hold all the winter's forage. And now comes the hog house, which was the most difficult matter to find a plan to suit me, and after doing considerable corresponding with parties over the State I finally adopted one of my own. This is a building 24x50 feet, with cement bottom over the whole building. This is arranged as follows: Passageway through the center, with four pens on each side 8x10 feet, with outside runways; in one end we have corn and oat bins, in the other end ground feed bins, feed grinder, feed cooker and pump. To this building is attached a power mill which furnishes power and plenty of it to run grinder, pump, corn sheller, and for any other use you might put it to. There is not an eighty acre farm in Fulton County that ought to be without this kind of improvement, considering the cost and benefit, as you will use more ground feed than if you depend on going to mill and hiring your grain ground, and there can be no doubt but what your grain will go much farther if ground than fed in the whole grain. I have no hesitancy in saying that I consider this one of the most profitable improvements I have yet made. And now with the granery (which I made too small) and smokehouse concludes the list of buildings, except the old dwelling house, which we have converted into an implement house. While these improvements have been going on I have often been reminded by persons of much more experience than I ever had that I was very foolish for going to so much expense; that I would never get my money out, and while I don't care to take issue with my friends who take a kindly interest in advising me, I have never changed my mind but that I was right in providing good buildings to properly care for everything raised on the farm, both as to stock and feed of all kinds. My theory being that feed properly kept is more valuable. Stock properly housed will require much less feed to winter through, and all the regrets that I have in the matter is that I have not more and better improvements. If I never get my money out I will always know just where it is, and coupled with this the fact that you can feel assured that your stock is not suffering for want of proper care. At this time there is not an animal on the farm but what has good comfortable quarters, neither is there any part of last year's crop, not even to a shock of fodder, outside.

We now come to the matter of ditching. When I bought the farm I was informed that it was thoroughly ditched, and while the party did not intend to misrepresent the matter, he was simply mistaken, as I have placed at least 300 rods of tile, and am not done yet, as I believe it is money well spent. There is very little ground but what is benefited by tiling, and especially take a place where water stands only in wet weather and that same place as a rule needs tile in a dry season. I am very much in favor of a tile instead of an open ditch where it is possible to use tile, as the amount of ground required to maintain an open ditch and the satisfaction of having your fields squared up certainly more than pays the cost of tiling. You start out almost any direction from Rochester and you will find here and there on almost every farm more or less low land that might be reclaimed with a small outlay of money, and in many cases the owners are amply able to do it without cramping themselves in the least, and about the only reason one can assign for not doing it is that they can not bear the idea of burying their money where they were unable to see it. I have often thought that if there was some kind of hydraulic method of ditching invented whereby land could be drained by leaving the tile on top of the ground where they could be seen, whether or not these same men would not go to work and drain these places. My notion is you had better have your money in ditches than on the credit side of your bank book.

Next in order comes fences. I have endeavored to build fences wherever needed, and with the present low prices of fencing no farmer can afford to do without them. If I had my fencing to do over again I would adopt one kind, either 36 or 38 inch woven wire with one barb wire above; this makes a good fence that will turn any kind of stock down to a very small pig.

Now I believe that you take a farm rigged up like this or similar to it and it leads up to advanced ideas in other directions, such as improving your stock and in caring for it, selecting the very best in the way of seeds, in building up the quality of your lands and in various other ways, one of which is the tendency to interest the boys and keep them on the farm. I noticed a short time ago in a newspaper an article headed "Warned Against the City." It went on to say that the farmer boy of Northern Indiana should beware of Chicago, and this is one of the statements in an official bulletin which is being sent out to teachers all over Indiana by the State Board of Public Instruction in an attempt to stem the tide of emigration of the farmer boys to the great cities of the country. The State Board determined on this action after receiving statistics showing estimates on the number of boys who have deserted the farm for the city during the last few years. It believes the vitality of the State is being sapped and will at once begin a crusade to stop the movement. This, to my mind, is a very grave question and one which can not be acted upon too quickly. Teach them, which is a fact, that farming is one of the noblest callings to which they can aspire.

And now while I have been forced to give my ideas of an ideal farm, I propose to force upon you my ideas of how to run one. I am now speaking of a rented farm, and while this may not interest all of you at the present time you do not know how soon circumstances may force you to become either renters or dependent on one. You take the subject of Landlord and Tenant and it seems to me that it has been entirely overlooked. Perhaps there is no other business in the world today that has made the advancement in the last few years as has that of farming. Farmers are taking more interest in institutes of this kind, in farmers' organizations and, in fact, in everything that tends to their advancement, and yet in this one subject there seems to be no change. Take the farmers' journals, of which there are many able ones, some of which I take, and as yet I never saw an article upon this subject. Is it possible that we already have the best system that can be devised? Now my notion is this: go to work and put your farm in proper shape to care for everything you raise, then get you a good man, make him an equal partner, and when I say equal I don't mean a bare living for him and the balance for yourself, but arrive at just what is justly due each other; don't go at it like two horse traders, each trying to get the better of the other, but make a contract that is perfectly fair, and both live up to it, and my word for it you will have a whole lot more money at the end of the year besides the satisfaction. Now while I don't care to flatter my partner, should he be in the audience, I will say that while talking over this subject with others they have made this remark, "If I knew where I could get such a man as you have I would like to have him," and I have felt like telling them they could not keep him unless they changed from their present mode of doing business.

On the other hand I have a great many applications to rent, saying they would just like to rent the way I was renting. We have a contract that we have changed from time to time which seems to be perfectly fair and we both live up to it, at least I am satisfied, and if he is not he is too bashful to mention it. Now, I feel under just as many obligations to him for caring for and keeping the farm in good shape as he possibly can to me for what I have done for him, and in this way we are enabled to continue from year to year without changing farms and tenants every year, which is a great loss to both parties. I don't claim that this condition can be accomplished in one year, it may take a number of years, as it has in our case, but go to work with that end in view. Don't conclude that all renters are dishonest. I believe that there are as many honest renters today as there are honest landlords, and I am not sure but more. There is sometimes a temptation to take advantage of a man's circumstances, and if you do, it will result in a failure to both. Perhaps there was never a time in the history of Fulton County when there were as many improvements made as there has been in the last five years. Let's not let it stop, but keep it going. The outlook for the farmer is just as good as it ever was. We can all do something to improve the looks of our farm, and I will close with this one statement. I was invited to give my ideas, and in order to substantiate the fact that they were my ideas, I have given a brief description of my own farm, not with a view to boast of what I have done or of contrasting my own with others, for I wish from the bottom of my heart that every farm in Fulton County was better than my own.

INFLUENCE OF HOME SURROUNDINGS.

BY MISS GRACE VAUGHT, SHELBYVILLE.

[Read before the Shelby County Farmers' Institute.]

A child, a chameleon and fabric in a dyer's vat are all similar in one respect and that is they reflect the color of their surroundings. By nature we know the character of a child is neither wicked nor virtuous. It is just innocent. Its conduct is affected either by good or bad environments. The first thing of importance is to form correct habits and this can only be accomplished by setting forth right ideals. There are three sets of habits to be guarded—physical, intellectual and moral. Habit is the condition of mind and body tending to unconscious repetition of acts. If a thought impulse moves outward along certain nevres and is manifested in action of certain muscles these nerves will more readily carry and these muscles more readily respond to some kind of thought impulse the second time than other nerves and muscles.

All forces move in direction of least resistance. We may compare lines of habit in child to channel of stream. It is evident that water will flow in course offering least resistance. By changing the course it can be made to better benefit man. Similarly thought impulses in child will form paths from brain and will be expressed in action, but controlled and directed would find better forms of living. The study of children should begin in the home. Mothers have best opportunities for observation and record of growth in body and mind of children. If a child shows a preference for a line of reading or work give him books and help him so that he may develop a strong individuality. If they choose some kind of work that is honorable do not oppose what nature has grained in them lest you make a failure out of them and disappoint yourself.

The environments of home are chief factors in training the aesthetic and ethical emotions. Teach them to appreciate the beautiful in nature, art and literature. The vicious and exciting literature circulated in the country does much towards inciting the young mind to degradation. In some homes parents read this trash and permit their children to read it. Pictures as well as books should be destroyed that border on obscenity. Do your duty to the child and if he fails you have consciousness of having done right. To the child of such parents I would say form the habit of obedience. An obedient child honors its father and mother and will grow into a law-abiding citizen. At present there seems to be a growing lack of respect for national authority. Some say this is traceable to the liberty of home and school. In one of the leading journals of America appeared, not long ago, an article emphasizing the decay of home authority. The conduct of our young people has been such as to win us the contemptuous name of "Young America" which expresses a national characteristic.

The older people may be criticised for the tendency to appear richer and more fashionable than their means will allow. Many homes that could be happy are otherwise because they have not the money to dress and entertain like their neighbors. A cultured heart and developed mind seeks in a home an atmosphere of congeniality and rest. Such homes as these are rare. When we look about and see so many discontented and fault-finding elders is it any wonder why so many girls and boys fly to the streets and other places of amusement.

The memories of a happy home cling like the odor of flowers to a vase. They say Abraham Lincoln said, "All that I am I owe to my mother." What higher tribute can be paid to home influences than this, coming from a man internationally admired? Napoleon saw the need of good mothers when he said, "What France needs is better mothers, then France will have better sons." We are fast coming out of the old rut that a woman's education should be limited to the routine of domestic duty. The higher her development in arts, science and religion the greater her originative power to train her children to higher intellectual and moral attainments.

Of course along with her science, modern and ancient history, should go the knowledge of housekeeping. While our girls are experimenting with microbes and germs let them know that a good batch of light bread depends on proper handling of yeast germs.

Our boys and girls should be brought up with an idea of self-support. Teach them the man oftener disgraces the profession than profession the man. Do not be rude and coarse in correcting faults of children. Do not break a child's will. The will is the power to decide and execute. Be gentle but firm and try to reason them out of their faults and try to bend their ambitions in directions helpful to themselves and others.

SOME CONVENIENCES IN AND ABOUT THE HOUSE.

BY MRS. W. P. BECKETT, AURORA.

[Read before the Dearborn County Farmers' Institute.]

In order to describe what I would consider a complete and conveniently arranged house, I would necessarily have to commence with the corner-stone, yes, before the corner-stone was laid.

The location of the house is one of the most essential things in connection with this subject. In few words it all means the saving of steps. Steps mean time, and time means money, not only money, but it represents a great deal more, it means weariness, fatigue and premature old age. Therefore, I say, we must commence right. No house poorly located can be made a convenient and up-to-date house, so that one woman can do the work that has required the labor of two.

I do not think it costs any more to build a convenient house than one not so. I can not enter into the plans and details as to size, style, etc., but can only mention a few points that I think most needed. As to location, I would select a place slightly elevated, just enough to insure good drainage, just one step up from the ground if possible. I would have a cellar large enough to be partitioned so that the furnace, vegetable and milk rooms would be separated.

The problem of how to best heat our farm homes is one that has caused a great deal of thought and much experimenting in the past, Economy is the "watchword" in all undertakings now, and nowhere is it more necessary than in the use of fuel. In time past every farm had a surplus of timber, with no market for it, and nothing but the labor of getting it ready was taken into account. But it is different now. When we look back to the old-fashioned fireplace of our childhood days there are not very many pleasant memories found clustering about the recollections called up between the labor of getting in the large quantity of fuel necessary to satisfy its never ceasing appetite and the frequent turnings about in the fruitless efforts to warm all sides at once. The youngsters were given a plenty to do to develop their muscles without practicing any other system of gymnastics.

We have had experience with the different ways of heating. I consider the furnace one of the greatest conveniences and comforts of all the modern inventions of the house. We consider health the most important of anything else, if we have not health we can not enjoy anything we are fortunate enough to have. First it is one of the best ways to ventilate the house. If we depend upon regulating transoms and the lowering of windows, they are apt to be neglected, but the furnace is always ready. I think one of the most unpleasant jobs a mortal ever tackled, is the blacking of stoves, and of course the furnace does away with that; there are no heavy stoves to move in house cleaning time, no stove-pipes to "ruffle" the temper of your husband (which is worth a great deal), the carpets are very much cleaner because no fuel is carried over them, the fire only has to be looked after two or three times in 24 hours, and if gone from home all day, the house remains warm for our home coming. And the first cost is but little more than the expense of providing the necessary number of stoves to heat a large house. Another convenience I prize highly is the "dumb-waiter" or safe made to operate from pantry to cellar—thus saving innumerable steps into the cellar.

As to the rooms in the house, I think the kitchen the most important. In it the house-wife, without hired help, is compelled to spend a great part of her time. Its furnishings need not be elaborate or grand—but should be such that will make it as handy as possible. The "kitchen cabinet" is one of the most useful pieces of furniture one can buy for the kitchen; it is pantry and kitchen table in one. It is provided with a roomy cupboard at the top, intended to contain the baking powder, soda, spices, flavoring, etc.; below this are several drawers which are very nice for napkins, towels, wash cloths, etc. Below this is a generous open shelf where articles can be placed which are desirable to have at hand at all times, such as cans of tea, coffee, pepper and salt and a soap dish. There is also a row of brass hooks to be used for the egg-beater, kitchen spoons, meat fork. Just below the table is the breadboard and also meat board. On below is swinging bins, which will hold about 75 pounds of flour, meal and sugar. It takes up no more room than the ordinary kitchen table. By this I think more steps may be saved than any other one article: one can almost get a meal standing at one place without going here and there to get the necessary utensils. The above description is of the Hoosier Kitchen Cabinet. Of course I am partial to that.

The task of washing can be greatly reduced if the proper preparations are made for laundry work. A house without a wash-room is surely incomplete, and a farm house more than any other requires one. The room need not be large, but arranged especially for the work. If possible the water should be piped to the room and a drain should be provided; the latter is very necessary. The tubs should be stationary with a drain-pipe leading from each. In this way all lifting of tubs is avoided. Hard and soft water in the kitchen is another great comfort, especially in winter. This may all seem too "citified," and beyond the reach of farmers. But why not the farmer's wife have as many conveniences as the city woman? In fact she has greater need for them as her time is most all taken up with home duties. These conveniences would so much aid her in her work. When we learn of the very scant supply of utensils of many of our housewives' kitchens, we do not wonder at their growing tired of the monotony of house-work. Give the average woman a modern kitchen and I have no fear but she will keep the house looking like a model. This is a progressive age, and we are, if not, ought to be a progressive people. The busy house-wife is ever looking for easier and better ways of doing her housework. Don't drudge every minute of your life away, make life as easy as possible. Your husband has the newest plows, the latest binder, or the best mower, he understands how to put in his corn the easiest and best way to plant his potatoes, which is the very thing he should do. Why not his wife make home-making an art, a profession? One other room of great importance I wish to mention is a sewing-room. I would prefer quite a small room, the floor to be covered with matting, which is easily brushed up and makes but little dust, plenty of light, a row of wardrobe hooks across one end on which to hang unfinished garments. This room I think very necessary, for it has been my experience to have to stop sewing most any time and look after other duties that demanded immediate attention. Having a room of this kind we can close the door behind us and our work can remain undisturbed. All these above mentioned conveniences are very necessary and if when building, the house-wife will insist upon having them, they will be forthcoming. Thus woman should learn to perform her work the easiest way, that which is most beneficial and essential to herself and those about her. As to the other rooms in the house, if you will make your sitting-rooms and parlors art galleries, a museum, a furniture warehouse, a toy shop and a World's Fair. I think a great many of our adornments only increase our care and work, say nothing of the expense, my idea of a room is very few "bric-a-brac," in fact a very limited amount of furnishings in each room.

I have in mind a home where every nook and corner is filled with pictures, cushions, toys and ornaments of most every description. I heard a young lady say who had made quite a visit there, that it took about twice as long to sweep and dust that house as any other two ordinary ones. All such things make perfect harbors for spiders, dust, etc. I do not mean by this that our walls should be bare, our chairs cushionless, what I mean is to do away with such an elaborate amount of such things. Therefore do not come around the "den" of man wailing that "woman's work" is never done, and that you have no time to read or for self improvement, but go to the mirror and make faces at the responsible person. (Make just as sweet and comely a face as you can; your children will enjoy it. Supt. of Insts.) We see many pleasant country homes with long verandas, we get occasional glimpses of lace-curtained windows, but for the most part the blinds are all down; there are pieces of porch furniture, but alas! no one sits there. We notice that the dwellers live in the back part of the house, I presume to keep the flies out in summer and the coal dust in winter. Occasionally the house-mother is seen boiling soap in the back yard in spring time or stirring apple butter in early fall—all this is well meant for they wish to be saving, but does it all pay? I think not. Whatever is too good to use, I do not want to buy. I believe in enjoying what we have. The farmer and his family can be the happiest of people while at eventide they can gather about the hearthstone and by means of the many good books and magazines seek that refinment which will bear fruit for God and man in the great future.

My subject says conveniences in and about the house. There is so much to be said about in the house I fear I will not get very far outside the house. There is one building outside I would have as close, and as near on a level with the kitchen door as possible, and that is a cold-storage room or sawdust cellar as commonly called. I have had some experience with the use of them and can not speak enough of their value, for milk and butter in summer and for fruit in winter. The construction of which is familiar with all. There are many things that could be said about walks, etc., and the surroundings outside, but time will not permit. When we get discouraged and think our work hard and monotonous, just look back a score or so of years to the time of our grandparents, when we compare the conveniences and improvements of our day and age with their way of living, as now the sewing machine occupies the place of the loom, the spinning wheels have long since found a place in the garret, of the carding factory nothing remains but a few rotting timbers, over and around which the waters of Big Flatrock murmur. Again I will say in conclusion our homes are what we make them. What tender associations are linked with the very word home. To the little child home is his world—he knows no other. Ask the man of mature years, whose brow is furrowed by care, ask him what is home. He will tell you it is a place of rest, a haven of content. Ask the lone wanderer as he plods his weary way, bent with the weight of years and white with the frosts of age. He will tell you it is a green spot in memory, an oasis in the desert. Therefore, let us strive to make it worthy of the name—home.

"HOW TO BEAUTIFY THE FARM HOME."

BY MISS MATTIE D. CATO, HUNTINGBURG.

[Extract of a paper read before the Dubois County Farmers' Institute.]

"As the twig is bent, the tree will grow." We are organized beings, and as such are governed by certain fixed laws or rules of action in our relation to the elements that surround us. If we turn our attention to these elements we will find that of "beauty" an essential one.

Beauty is admired by all nations and by all people. It is a charm that is attractive to the old and the young, the rich and the poor, the good and the bad. It is praised, loved and desired by all. It is valued above the "philosopher's stone," or the "fabled fountain of youth."

Genius, art and nature combined beautify the home. It is our purpose in this paper to present a few ideas by which these may be combined in beautifying the farm home. Home, what is it? Webster says home is one's dwelling house. Shall we confine ourselves to this definition? Does not home mean more to us than simply a place of habitation? Neither do four walls make a home. Nay, more than this is required. It means a generous supply of Nature's bounties, carefully arranged and tended; it means intelligence at the workstand, it means diligence at the book, it means love at the hearth, it means devotion at the altar.

Beauty is that assemblage of graces, or that proportion of parts which pleases the senses, especially the eye or the ear. Look at the delicate tints and the exquisite beauty with which nature has embellished the rose and the flowers of the field. The skill of the artist can not equal her in her works of beauty. Thus by combining skill and labor with the work of nature very effective results can be obtained. (Parts omitted.)

The yard ought to be sloping from the house. A neat low fence, well painted, surrounding it. A few choice trees, evergreen and shade trees, some shrubs and a generous supply of flowers, including roses, especially the choice roses of fall, and surrounding each of these a carpet of blue grass, will make a picturesque scenery of the yard.

Having completed the outside of our home, let us pass over its threshold and see what is found on the inside. It is needless to say that cleanliness is noticed throughout, for it is an essential to beauty at all times. We can well apply the following quotation from Shakespeare in furnishing our home: "Costly thy habit as thy purse can buy." The furniture need not be costly. It should harmonize with the outside condition and appearance of the house. Neither should there be an oversupply of it, for that only makes more work to keep it in a presentable appearance. Pictures should be few and well chosen. Many people have yet to learn that beauty does not depend upon complexity and prodigality, and that it has nothing whatever to do with the fashions.

Savages and half-civilized people delight in multiplicity; the more tattooing, the more earrings and nose rings, the greater the beauty in their judgment. "Oh, but we want to change the pictures about," somebody says; "it is so monotonous to have always the same things in the same place." If the room is once really beautiful it ought not to be changed. "A thing of beauty is a joy forever." People change their parlor furnishings simply because the decorative effect is never quite right. Walls are decorated for the sole purpose of enhancing their beauty. It would seem unnecessary to add that whatever is placed upon them should be beautiful. The subject of a picture may be unimpeachable, but unless the picture itself is a thing of beauty it has no place upon the walls of our home. Allow me to suggest a few good pictures for use in the home decoration: Sistine Madonna, Christmas Chimes, The Gleaners, Pilgrims Going to Church, The Water Carriers, Washington, Virgin, Infant Jesus, St. John, and Portrait of His Mother. (Omissions.)

Pot flowers is another aid in beautifying the inside of a home. Have a palm or two, some ferns, a begonia, choice chrysanthemums, etc., placed at the windows or on the table in some appropriate part of the room. These are especially helpful during the gloomy winter months. We may have all the things spoken of in this paper, but if we have not cheerfulness in our home it is not really beautiful.

Last? Yes, but not least. Cheerfulness is like a sunny day; it sheds brightness on everything around us. No trait of character is more valuable or more productive of happiness than is cheerfulness; it lightens our burdens, multiplies our friends, and promotes our health. Cheerfulness makes the air seem more balmy, the sky clearer, and even the sunshine more beautiful; while gloominess is a mildew that blights our talents, blasts our happiness and beclouds our life.

AN IDEAL HOME.

BY NELLIE SHUGART DAVIS, MARION.

[Read before the Grant County Farmers' Institute.]

"Home," says the Rev. Rufus W. Clark, "is one of the blessings that has escaped the ruins of the fall. It is the oasis of the moral desert that surrounds us. It is the morning star of our existence, and the evening star of our declining years. It is the rainbow upon the stormcloud that tells us of a quiet retreat from the tempests of misfortune and calamity. Its pleasures remain when all other sources of worldly happiness are dried up. Its love and sympathy continue when all beside is neglect or cold indifference."

Such may be said of an ideal home.

The underlying principles of such a home rest primarily upon love and congenial relations. The harmony and happiness of a home results from harmony between husband and wife.

If loving and beloved destiny united with worthy companion rejoicing will result and life's journey will be accompanied with a glow of satisfaction and delight unfelt before which will often be renewed and daily prove as the living waters from some perennial spring.

Courteous demeanor and kindly words belong to a well ordered home. A smile costs nothing and exerts a wholesome influence. Study how to please, and avoid that which gives needless pain to others. Always grant a favor when asked, unless you have a reasonbale excuse for refusing, in which case refuse kindly. "One should be polite at home, not merely for the sake of appearing to advantage abroad but that you might render yourself and your home happy and agreeable."

In the well organized ideal there must be mutual forbearance.

"The kindest and the happiest pair
Will find occasion to forbear.
Something every day they live
To pity and perhaps forgive."

As some one has said, "If there be proper forbearance and mutual condescension these points of individuality will break the monotony of sameness and form a wholesome and pleasing variety and will by no means impair the essence of true union."

Be confiding one toward the other. There should be no uncommunicated secrets. The third party is disturbing. "Confidence when once broken, like broken chinaware, is rarely ever completely repaired. Everything that would intend to impair it should be studiously avoided."

Self-control is the secret to all true greatness.

"The government of one's self is the only true freedom for the individual."

It is length of patience and endurance and forbearance that so much of what is called good in mankind and womankind, is shown.

Self-control is the root of all virtues.

"In supremacy of self-control," says Herbert Spencer, "consists one of the perfections of ideal man. Not to be impulsive, nor to be spurred hither and thither by each desire that in turn comes uppermost, but to be self-restrained, self-balanced, governed by the joint decision of the feelings in counsel assembled before whom every action shall have been fully debated and calmly determined, that it is education, moral, education at least, strives to produce." Thus the best regulated home is always that which in discipline is the most perfect and yet where it is the least felt. Those subject to self-control yield themselves to it unconsciously, and though it shapes and forms the whole character until the life becomes chrystalized in habit, the influence thus exercised is for the most part unseen and almost unfelt.

The ideal pair will gauge their expenses by their revenues, thus establishing a systematic care to avoid all waste and extravagance. Let not the allurements of fashion tempt you to go beyond living within your means.

In order to continue the courtship, the ideal husband and wife will not conceal their love. The wife will cultivate the modesty and delicacy of her youth, and cultivate her personal attractiveness, as she did not win her husband by an untidy appearance. She will cultivate physical beauty by keeping her hair in perfect training, knowing that cleanliness and good taste will attract now as formerly. She will study her husband's character and seek to please, always greeting him with a smile of welcome. The husband in return will take his wife with him into society, study to keep her young, consult with her in regard to his business relations, show his love, avoid habitual absence from home during evenings, make himself helpful by thoughtfulness, and seek to express his will by suggestions, not by commands.

Among the essentials of an ideal home are spiritual, moral, mental and physical development. Under the first named I would say religion sheds heavenly light and true happiness upon our earthly pathway. When dark clouds assail us, when discouraging billows roll, when we are seemingly rendered independent of earthly props or aids, our faith in Christ furnishes us support as nothing else can. When duty calls us to places where danger may assail or death may threaten, why should we fear to face any foe in labors to elevate humanity, as long as we have the assurance that there is willingness and ability in Him who says "Go, I am with you alway." Let us acknowledge His divine guidance and sustaining power openly.

Second—"Ye must be born again is the experimental foundation of all true morality." The standard of purity in conversation, in dress and habit cannot be raised too high.

The ideal home testifies to a high and noble origin. Stand upon your manhood and womanhood and dare to do right.

Thirdly—The ideal home stands for education, because the educated mind views the word in a truer phase of its existence. It places our sons and daughters on a higher plane and prepares them for positions of honor and rank. An education elevates and expands the mind, it is upbuilding, it is a benefit, and it is a foundation to success. It brings out the best in man and woman, and tones down the worst.

"'Tis education forms the common mind,
As the twig is bent the tree's inclined."

Fourthly—By the exercise of good practical common sense much can be done for the physical development within the precincts of our home. It costs no outlay of labor or money to air a chamber or to bathe the body, thus establishing habits which are of vital importance to the health. Deep breathing, delsarte exercise, wholesome food, fresh air and sleep at regular hours are indispensable to physical development.

The greatest problem confronting the home is the proper culture of children. Someone has wisely said "the education of a child should begin twenty-five years before its birth." It would be well for every father and mother to consider this statement. The unborn child is affected by the thoughts and surroundings of the mother, hence it is necessary that proper qualities of mind, character and health exist while the child is in the embryo stage, that the proper transmission take place.

"Maternity, when it exists at the call of the wife and is gratefully received but binds her heart more tenderly and devotedly to her husband. As the father of her child he stands before her invested with new beauty and dignity. She loves and honors him because he has crowned her with the glory of a mother. Maternity to her, instead of being repulsive is a diadem of beauty, a crown of rejoicing and deep and tender and self-forgetting are her love and reverence for him who has placed it upon her brow. How noble, how august, how beautiful when thus bestowed and received."

As it is mainly in the home that the heart is opened, the habits formed, the intellect awakened and character unfolded for good or evil, it is essential that the parents of the ideal home be united in their efforts to train their children properly. They should govern in the spirit of love, punish as little as possible, and let gentleness characterize every act of authority. They should guard modesty, protect purity, and emphasize integrity. Do not manifest impatience, do not allow yourself to lose your temper or speak excitedly, guard your manner and tone. Do not use profanity or vulgar terms, do not contradict, do not tell impure stories, avoid exaggeration, avoid fault-finding, and in everything strive to set a worthy example.

In the language of another "that training which is first of all committed to you fathers and mothers, and which cannot be wholly delegated to others so long as your children are within the compass of your influence is that which comprehends their physical, mental and spiritual natures. That education and discipline that neglects either the body, the mind or the heart is seriously defective."

"The ideal parents will be united upon guarding them from everything that would tend to unsettle their minds on the great question of Christianity and the inspiration and authenticity of the Bible."

Guard them against evil associates, realizing the truth of the adage, "If you always live with those who are lame you will yourself learn to limp."

Teach them that "without reputation gold has no value, birth no distinction, station no dignity, beauty no charm, age no reverence; without it every treasure impoverishes, every grace deforms, every dignity degrades, and all the arts and the accomplishments of life stand, like the beacon blaze upon a rock warning the world that its approach is dangerous, that its contact is death."

Command the respect of your children, and there will be no question as to obedience. Study the problems that come up daily in your home, remembering your future happiness and the future welfare of your children depend upon it.

Luke Woodard says: "The hallowed influences of home will live long after the voice of the father and mother are hushed in death. Those influences, if they have been such as they ought to be, will then be like a golden chain let down from the skies to draw the hearts of the children toward that home above to which a loved father and mother have gone before. How soon will the brief time that thus separates the loved of earth from the loved in heaven pass away."

"Oh how sweet it will be in that beautiful land,
So free from all sorrow and pain;
With songs on our lips and with harps in our hands,
To meet one another again."

DISEASES OF SWINE.

As a matter of convenience and to aid in understanding diseases, we divide them into three classes—sporadic, contagious and infectious. This classification is purely arbitrary and is based upon the nature of the cause. Sporadic diseases are those which have no one constant cause. A variety of causes may produce the same disease. Colic, diarrhoea, rheumatism, colds, etc., are types of sporadic diseases. Colic, for example, may be caused by a change of food, by green food, by spoiled food, by watering when the animal is too warm, by contaminated water, by drugs, by exhaustion, by exposure, by worms and other causes. There is no single cause for colic, colds or any other sporadic disease. In sporadic diseases the disease can not be conveyed from one animal to another, as there is no specific germ or any organism acting. If several other animals are affected alike at the same time it is because all have been subject to like causes and not because it has spread from one to another. As a rule, only one, or a few animals of a stable herd or flock are affected at the same time, and there is no tendency to spread.

Contagious diseases are those which are always produced by the same cause and the causative factor may be communicated from one animal to another of the same species, or in some cases to animals of different species. When we speak of strictly contagious diseases we usually have reference to those due to germs, or animal life that are normally parasitic and do not live or multiply outside the body, and which require comparatively close contact in order to spread. Distance or a long lapse of time between the coming of animals to the same place are sufficient to prevent the spread. In other words the germ does not pass an indefinite distance between the animals or live for a long time outside the animal's body. As examples of this disease, we have sheep scab, tape worms, glanders, pleuro-pneumonia, etc. In the case of sheep scab, the cause is always the scab mite; it can not travel alone and will not live in the pens, in the cars, on the fences or other objects with which the diseased sheep may come in contact for a long time. Therefore sheep separated by a roadway, or flocks using the pens where diseased sheep have been some months prior do not become affected. Pleuro-pneumonia in cattle is also a contagious disease, and at one time had a good foothold in this country. It is a disease in which the germ does not live long outside the body and only carried by contact or artificial means. It was eradicated by destroying all that were affected and disinfecting the places where it had been. Glanders among horses is also contagious, as it is only spread by contact or close association. All strictly contagious diseases are controllable and could be exterminated by united efforts. The drastic measures used to stamp out pleuro-pneumonia would stamp out sheep scab in a short time.

Infectious diseases are those caused by some special agent or parasite, and the cause may live and multiply outside the body. Infectious diseases may be and frequently are contagious. Some infectious diseases, however, are not contagious. The line separating contagious and infectious diseases is not very clear. The distinction is largely one of degree. Among the types of infectious diseases we have lump jaw and blackleg of cattle, distemper and influenza of horses, cholera and swine plague in hogs, and roup in poultry. True lump jaw in cattle is always caused by the ray fungus. The fungus is obtained upon the food which the animal takes, but the disease is rarely spread from the discharges from the wound. Blackleg is obtained from the pasture or forage, the germs being known to live for a long time outside of the body. Influenza and strangles occur in epidemics because the germs live outside the body and under favorable climatic conditions develop generally, thus causing widespread outbreaks at the same time. Hog cholera and swine plague are both infectious and contagious, the germs live outside the body and no amount of separation of herds will ever stamp out the disease. It only decreases the number of cases. The germs of tetanus or lockjaw are to be found growing in the soil, but do not cause trouble unless accidentally introduced into a closed wound. Infectious diseases can not be wholly controlled because the occurrence in an animal is not essential to the life of the germ. Some may be prevented by vaccination, as blackleg, and some have been greatly reduced by learning the habits of the germs outside of the body and making these places uncongenial to their growth.

The Causes of Disease.—The causes of disease are the indirect or predisposing causes and the direct or exciting causes. The predisposing causes are many factors which tend to render the body more susceptible or to favor the presence of the exciting cause. The exciting cause is the specific agent or the thing that introduces the disease. To illustrate, an animal having a narrow, pinched chest may be in health, but when subjected to the same conditions as its companions it contracts disease while they do not. The lessened lung capacity has rendered the animal susceptible. Hogs pastured on high dry ground and fed on clean feeding floors are comparatively free from intestinal worms; hogs pastured upon low, wet ground and in the mud are frequently infested with worms. In this case the low, damp pasture has been favorable to the parasite, and therefore made it possible to do harm. In one case the predisposing cause was in the animal; in the other, without.

Among the causes of disease we may briefly consider the following:

Age.—Young animals are more subject to attacks of contagious or infectious diseases than old. White scours, suppurative joint disease and infectious sore mouths are diseases of the first few days or weeks. Thumps occur early. Cholera occurs with much greater virulence in those under six months of age than in the older. Lung worms or whooping cough occurs between two and four months. Swine plague attacks the older hogs. Trichinae likewise more often occurs in mature animals. As a rule, the young are more subject to acute diseases and the old to chronic troubles.

Sex.—The matter of sex has little bearing on the diseases of swine other than those due to farrowing.

Breed.—The matter of breed is of less importance in the diseases of swine than in other domestic animals. Some breeds are more active than others, and thereby seem to have increased resistive powers to some troubles. For example, active pigs seldom have thumps. It is the lazy, fat fellows that are particularly susceptible.

Care and Feeding.—These are factors of great importance. The feeding of unsuitable foods, as city swill; dirty, sour slop; those containing large quantities of soaps; feeding too heavily when too young; feeding full rations of green corn as soon as it is ready; feeding cotton seed; feeding with too limited exercise; pasturing upon clover sod, where there are many grub worms, and upon land known to be infected with parasites, are all factors contributing to some forms of disease.

Shelter.—Sudden changes of temperature, extremes of heat and cold, exposure to storms, etc., all have their effect. Piling under straw stacks and hot sheds predisposes to pneumonia. Lying in damp beds cause skin troubles. The hog does not need a great deal of shelter, but needs that dry and comfortable.

Location.—Sometimes the difference of a few rods makes the difference between having disease in a herd and not having it. A dry, protected site is always preferable to one in the open or low.

Water Supply.—The work of this station has been such as to prove that only well water, deep well water from a tubular well, can be recommended for all kinds of farm animals. This applies with possibly greater force to the hog than to any other class, because cholera, a water-borne disease, is the principal scourge. In actual practice, however, the reverse condition prevails.

Previous Disease.—The effect of one attack of one infectious disease as a rule confers immunity against a subsequent attack. This is not true of all, but of many. One attack of cholera will not give complete immunity, but does reduce the chances of a second attack. The effect of one disease may weaken a part and make the animal susceptible to some other trouble, as lung worms may make it easy to acquire pneumonia.

Vital Causes.—The vital causes are all living organisms, either plant or animal, that act as parasites at any stage of their existence. They may be either accessory or direct causes. The animal parasites are lice, intestinal worms, flukes, trichinae, etc. The plant parasites are nearly all bacteria; the cause of cholera, swine plague, scours, joint disease, sore mouth, etc. They may act as accessory causes, as the lung worm may prepare the way for pneumonia, or directly cause it, as in the case of cholera germ.

Diagnosis and Symptoms.—In examining a hog the behavior, appearance, general conditions and surroundings must all be taken under consideration.

The grouping of symptoms into signs of disease is not as difficult in the hog as it is in some of the other farm animals, but in order to recognize deviation from the normal, we must be familiar with the habits of the animal, the structure and the physiological functions of the body, or at least possess a practical knowledge of these things. Swine breeders have plenty of opportunity to learn this from personal observation; without this knowledge it is not possible to care for or treat hogs in an intelligent manner when sick.

The general symptoms, those affecting the entire system, inform us as to the condition of the animal at the outset and during the progress of a disease. Thus we have the symptoms connected with (a) the pulse; (b) the mucous membranes; (c) the respirations; (d) the body temperature; (e) the surface of the body; (f) the secretions and the excretions; (g) the nervous system.

All of the general symptoms manifested by the hog are seldom considered either in the diagnosis or the treatment of disease. There is no reason, however, when treating valuable stock hogs why a full knowledge of the condition of the animal should not be of the same importance as in the treatment of other domestic animals; unless the hog is quiet or can be handled, this is impossible.

The pulse can be easily taken in the hog from the femoral artery on the inner side of the thigh. The artery crosses this region in an oblique direction and is quite superficial toward the anterior and lower part. The normal of pulse beats per minute is usually estimated at about seventy to eighty. In young pigs, and when exercised or excited, the rate is much higher.

The following varieties of pulse are recognized in disease: Frequent or infrequent, quick or slow, large or small, hard or soft, and regular or intermittent. The frequency of the pulse has reference to the number of pulsations per minute; quick or slow to the time required for the pulse wave to pass under the finger; large or small to the volume of blood that passes at each beat; hard or soft to the sense of feeling while passing under the fingers; and regular or intermittent to the intervals between the beats. There may be a number of beats regular and in time and then the missing of one or two, or there may be an acceleration of a few beats. The condition of the circulation may also be judged by placing the hand on the left side of the chest and as nearly over the heart as possible.

The number of respirations per minute is subject to considerable variation. When at rest they will vary from ten to twenty; if warm or excited and during exercise, from sixty to one hundred. In hogs, normal respirations are frequently accompanied by respiratory sounds. In disease the respirations may be quickened and their character changed, as in pleurisy, peritonitis, pneumonia, etc. In the abdominal form of respiration, the movements of the walls of the chest are limited. This occurs in pleurisy. In the thoracic form of respiration the abdominal wall is held rigid and the movements of the walls of the chest make up for the deficiency. This latter condition is seen in peritonitis.

In inflammation of the air passages, irritation from dust or parasites, the secretions from the lining membranes are modified and usually sneezing or coughing occurs. In the different diseases of the respiratory organs, the modified sounds are of much value, both in the diagnosis and treatment.

The body temperature is taken per rectum, the ordinary fever thermometer being used. The normal temperature of a hog will vary from 100.5 to 105. Fahrenheit, the average being about 103. In order to determine the normal, it is well to take that of some of the other animals in the pen and make a comparison. Exercise and warm pens will increase the body temperature; cold weather and drinking cold water will lower it.

In health the visible mucous membranes are usually a pale reddish color, and when inflamed a bright red. In collapse, internal hemorrhage, impoverished or bloodless conditions of the body the membranes are pale. In indigestion that lining the mouth may appear coated; if irritated, excessively moist, and if the hog is feverish, dry. In serious diseases, especially febrile disturbances, secretions may accumulate around the margins of the eyelids and the eyes appear dull.

Healthy hogs should have a smooth, rather heavy, glossy coat, and the skin feel mellow and soft. When the skin loses its elasticity, becomes hard, rigid and scurvy and the hair rough and harsh, it indicates a lack of nutrition and an unhealthy condition of the body. When the coat is thin or the hog affected with external parasites, irritation from the sun and parasites may cause it to become greatly changed. Sleeping on frozen, wet ground will cause great thickening.

The character of the excretions from the kidneys and bowels become modified in some diseases, and should be considered in making a diagnosis.

The state of the nervous system is indicated by dullness, excitability or delirium. The hog may stagger, walk stiffly, drop the head and appear greatly depressed when affected with some diseases. Turning the head to one side, walking stiffly, walking in a circle, convulsions and paralysis are symptoms manifested in the different diseases of the nervous system.

Administration of Medicine.—The different methods of giving medicine are as follows: (a) By way of the mouth, in the head or as a drench; (b) by injection into the tissues beneath the skin; (c) by rubbing into the skin; (d) by the air passages and lungs; (e) by the rectum.

By Way of the Mouth.—Hogs possess a rather simple digestive tract, and are very susceptible to the action of drugs when given in the feed or as a drench.

If the hog is not too sick to eat and the drug does not possess an unpleasant taste, it can be given in the feed. If soluble, milk can be used; if insoluble, ground feed is to be prepared. In all cases the medicine must be well mixed with the feed. When a large number are to be dosed, it is best to separate them into lots of ten and feed each lot separately. When this is done there is greater certainty of each getting the proper dose and the danger of overdosing is avoided. In the case of young pigs we can take advantage of the fact that some drugs are excreted in the milk, and administer the drug to the mother.

Drenching a hog is not difficult if quietly and easily managed. A large herd can be drenched quite rapidly if driven into a small pen, as the hogs will be in such close quarters that they can not get away. To secure the hog while drenching it, a noose of sash cord or small rope can be placed around the upper jaw well back toward the angle of the mouth, and the medicine administered with a metallic dose syringe. Sometimes when the dose is bulky and the hog hard to hold, it is necessary to elevate the head and raise the fore feet off the ground. For this purpose a pulley and a rope wire stretcher is recommended. It should be hung in some convenient place in the pen and the animal secured in the usual way by placing a noose over the upper jaw. The rope is then thrown over the hook in the lower pulley and the hog drawn up until it is almost off its feet. The drench must not be administered until the hog is quiet and well under control, as there is danger of the medicine getting into the air passages and doing harm. If there is danger of the hogs getting mixed in the operation, as soon as one is drenched it can be marked with paint.

Drugs when soluble are best given in water or milk; when insoluble, in syrup or oil. Instead of a syringe a long-necked bottle or a funnel with rubber tubing and an iron nozzle can be used.

By Injecting Into the Tissues Beneath the Skin.—This method of administration is suitable when the drug is non-irritating, the dose small and when prompt, energetic effects are required. The needle and hypodermic syringe should be sterile, and the place of injection washed with an antiseptic wash in order to prevent the formation of an abscess. The point of injection should be where the skin is thin, as the flank, belly, ear, or inside the thigh. The needle is introduced through the skin and the medicine injected beneath it by slowly pushing the piston. In the case of fat hogs the injection should go into the muscular tissue; otherwise it will not be absorbed promptly.

By Way of the Air Passages and Lungs.—This method of administration is practiced but little, and usually for a local effect on the respiratory organs only. The hog or hogs are put into a tight inclosure and allowed to inhale the vapors of the drug. Drugs suitable for this purpose are turpentine, creolin, eucalyptol, sulphur, etc. Turpentine is the one most used, and is easily disseminated by pouring on hot water or by putting a couple ounces on hot bricks. Care must be exercised when treating hogs in this way, as they may suffer from lack of air.

By Way of the Rectum.—Enemas or clysters are usually given for a local effect on the rectum or to accelerate the action of a purgative. To administer an enema a fountain syringe is best. The nozzle of the syringe should be smeared with vaseline before introducing it into the rectum. When the injection is large, it is well to elevate the hind parts of the hog. A gallon or more can be introduced into the intestines in this way. A funnel and rubber tubing or an ordinary syringe can be used for this purpose.

Preventive Treatment.—Preventive treatment is recognized by all successful hog raisers as the most successful and economical method of combatting disease, and it is along this line that the greatest attention should be directed. Disease is best combatted by correcting the faults in breeding and feeding, by good hygienic surroundings, by ample exercise, fresh air and sunlight, clean yards and pens, and the free use of disinfectants.

Diseases of the Digestive System. Stomatitis. Sore Mouth. Causes.—Putrid or decomposing slops, irritating or hot foods, drenches, the water of foul wallows, especially that containing much seepage from the manure pile, are among the common causes of simple stomatitis in swine. Decayed teeth, irritation from awns or beards of grasses, as barley and wheat in the feed, and rope loops used in catching hogs may also cause it. Circumscribed inflamed patches on the mucous membrane of the mouth are sometimes seen in hog cholera, swine plague, anthrax, actinomycosis, and other diseases.

Symptoms.—The mucous membrane of the mouth is hot, dry and red in appearance. Ropy saliva dribbles from the corners. The animal champs its jaws and seems to find relief in running its nose into cold water. There is a disagreeable odor from the mouth. Mastication is painful, and the hog shows a disposition to eat sparingly. Soft liquid food is preferred. Hard food is imperfectly masticated and may drop from the mouth. Recovery usually takes place in a few days.

Treatment.—If due to irritating foods, the cause should be removed. Hard food should be withheld and nothing but sloppy foods fed to the animal when in this condition. Plenty of cool, clean water should be placed where the hog can drink and run its nose into it. The medical treatment consists in washing the mouth twice a day with an astringent wash or antiseptic lotion. A four per cent. solution of boric acid or alum can be used for this purpose. The coal tar washes are also serviceable.

Ulcerative Stomatitis. Infectious Sore Mouth of Pigs. Causes.—This disease is common in pigs from a few days to several weeks of age and is infectious in character. No specific germ, however, has been found. Dusty, dirty or muddy quarters are among the predisposing causes. Under such conditions the sow's udder is exposed to dust and dirt and acts as a carrier of disease-producing germs. The disease may be spread by diseased pigs infecting the teats of the mothers of healthy litters.

Symptoms.—The mucous membrane lining the lips and cheeks is swollen and inflamed. This is frequently quite marked, the snout and lips becoming so badly swollen that the pig can hardly breathe. The pig is at first careless of the teat, and as the ulceration progresses it becomes unable to suckle. The ulcers form quite readily on the lips, snout and tongue, appearing as light colored spots elevated above the healthy tissue. These soon break down and slough off, leaving deep, cavernous excavations that may involve several of the teeth or a large portion of the lips or snout. The ulcers on the face and body appear as brown scabs that soon open into deep pits or cracks. The pig acts very dull, is feverish, and being unable to suckle, becomes greatly emaciated and soon starves to death. In advanced cases treatment does but little good. If recovery does occur, the pig is usually stunted, or deformed about the face or lips. The disease may end fatally in from three to ten days.

Treatment.—The preventive treatment is very important. The diseased pigs should be isolated from the healthy ones, the pens kept clean and disinfectants used freely. The diseased pigs should be dipped head foremost into a two per cent. water solution of any of the coal tar products or the mouth dipped into a solution of permanganate of potassium (one ounce to the gallon of water). This must be repeated once a day for several days. It is also best to wash the udder of the mother with a similar solution. When the ulceration is well advanced, the dead tissue should be removed and lunar caustic rubbed on the parts. It is usually best to destroy such animals.

Diseased Teeth.—The hog eats all sorts of objects, and cracks nuts, coal, gravel, etc., upon the teeth, so that when the hog becomes old he is almost sure to have a bad mouth. Hogs sold for stock purposes are seldom affected in this way. Boars sometimes have very long tusks.

Symptoms.—The symptoms of some derangement of the teeth are pain upon grinding, holding the head to one side while eating, insufficient mastication, as seen in the half or whole grain passed, and inability to shell corn from the ear.

Treatment.—The treatment is to give largely ground or sloppy food, and pasture. Cut off with dentist's cutters all long tusks, but do not knock them out with a punch or cold chisel, as the latter method is almost sure to crack the teeth and fracture the jaw.

Black Teeth.—This condition is frequently brought to the attention of the veterinarian, but as yet we have no satisfactory explanation to offer for their presence. They are also found in health, as we have observed in the heads at the slaughter house. Undoubtedly too much stress has been laid upon this condition. We are not inclined to attribute any disease to this condition upon the present evidence. In very young pigs, where this condition is most frequently seen, there may be very long, sharp teeth present which it would be better to cut off. At the time of dentition the temporary tooth may be present, as a dark shell, and the gums be made sore, and cause the pig to hold the mouth open to salivate, and to refuse food.

Depraved Appetite. Causes.—Depraved appetite is due to a variety of causes, and may occur as a symptom in different diseases. Faulty rations, especially if deficient in alkaline and earthy salts, lack of exercise, digestive disorders and a nervous condition may cause it.

Symptoms.—The hog shows an inclination to eat all sorts of indigestible substances—earth, sand, feces, bristles, rotten wood, etc. Sometimes they are quarrelsome and may attack one of their number and kill it. Sows will eat their young, especially at the time of birth. When thus affected they do not thrive as they should and may become quite thin.

Treatment.—The treatment is chiefly preventive, and consists in supplying to the ration whatever elements are wanting. The addition of charcoal, salt, wood ashes, etc., will sometimes answer the purpose well when the other ingredients seem to be about right. When the affection is due to chronic indigestion, the latter should be given the proper treatment.

Acute Indigestion. Causes.—Overloading the stomach, and spoiled foods, especially putrid swill, are common causes of indigestion. Alkaline washing powders and soaps irritate the stomach and intestines and may bring about this condition. Poor care, exposure and intestinal worms may also cause it.

Symptoms.—The hog refuses food, is generally restless and may have colicky pains. It usually wanders off by itself, acts dull, grunts, lies down in a quiet place or stands with the back arched and abdomen tense. It seems to like to hide itself in the bedding, litter around a manure heap or straw stack and in the grass or weeds. When vomiting occurs early in the attack, recovery usually takes place in a short time. Sometimes the animal has diarrhoea. The body temperature may be higher than normal.

Treatment.—Feeds that will irritate the stomach or intestines should be avoided. It is desirable to induce vomiting as soon as possible by giving an emetic of ipecacuan (twenty or thirty grains in a little warm water—heaping teaspoonful to tablespoonful). This can be followed by two or three ounces of castor oil. The pig should be kept in the pen and fed on easily digested ration.

Chronic Indigestion. Causes.—When the causes of acute indigestion act for some time either in an intermittent or continuous manner, it will terminate in the chronic form.

Symptoms.—In the beginning these may be the same as in the acute form. The hog presents an unthrifty appearance and may become quite thin. The young pig becomes stunted. We may observe constipation and diarrhoea alternating.

Treatment.—Clean quarters and a well balanced, easily digested ration should be provided. The hog should have access to plenty of common salt and charcoal. As a tonic the following mixture can be given in the feed: Bicarbonate of soda (two ounces), powdered gentian (three drams), sulphate of soda (three ounces.) The dose is about one teaspoonful twice daily. To check the diarrhoea, nitrate of bismuth in dram or half dram doses can be given. If constipated, a cathartic of calomel (ten to twenty grains) will give relief.

Inflammation of the Stomach and Intestines. Gastro-Enteritis.—Inflammation of the stomach can not be readily distinguished from that of the intestines, and vice versa. Frequently both are inflamed at the same time. It is therefore more convenient to discuss both under the head of gastro-enteritis.

Causes.—This disease is largely due to unhygienic conditions. Some people seem to think that a hog can eat anything and take poison with impunity, and as a result it frequently suffers from ignorant practice in the feeding, care and drug administration. The causes of gastro-enteritis are much the same as in indigestion, only they act more intensely. We must especially mention dirty, filthy yards and pens, decomposed and overkept foods. When hogs are kept in filthy quarters the snout and food become soiled with all sorts of microbes. These enter the digestive tract along with the food, irritate the lining membrane and pave the way for those germs that would otherwise prove harmless. Toxic or poisonous substances, as salt brine, washing powders, dish water, etc., that are frequently found in the swill may cause it. Using poisonous or severe drugs for the treatment of cholera is a frequent cause.

Symptoms.—The animal shows evidence of severe abdominal pain. The back is arched, ears pendant and abdomen tucked up. When the abdomen is pressed on it will cause the hog to flinch with pain. Pain is manifested by grunting, squealing, restlessness, champing and grinding of the teeth. The body temperature is elevated. If the offending matter is fermentive or obstructive, there is bloating. When the stomach is involved, vomiting is a prominent symptom. The inflammation at first causes an intense thirst, and the bowels are constipated. Later a diarrhoea is present. The hog becomes very dull and weak, and is generally seen lying down in a bed that it has rooted for itself in the litter. There is no rule as to the duration. It may last but a short time or continue for a week or more.

Lesions.—The post-mortem appearance is a congested and inflamed condition of the mucous membrane lining the intestines, sometimes other layers of the wall and the peritoneum are involved. The contents are mucous and flakey in character. The lymphatic glands are reddened and thickened, and if due to a slow infection there may be follicular ulcers in the mucous membrane.

Treatment.—The hog should be kept in clean quarters. If vomiting has not occurred, the offensive material should be got rid of by giving an emetic of ipecacuan (teaspoonful to tablespoonful in a little warm water). This can be followed by a laxative of castor oil, one or two ounces, or calomel in from ten to thirty grain doses can be given. To relieve the pain a teaspoonful of laudanum in about the same amount of linseed oil can be given. Rectal injections of soapsuds may be necessary to relieve the constipation. If diarrhoea is a symptom of the disease, nitrate of bismuth in dram or half dram doses can be given two or three times a day. As a counter-irritant, oil of turpentine may be applied to the walls of the abdomen and covered up until the skin is quite red. The best diet is well-boiled thin gruels. This should be fed until the hog is able to digest the ordinary ration.

Toxic Gastro-Enteritis.—Meat brine and washing powders are the most common causes of poisoning in swine, and are always accompanied by an inflammation of the intestines and stomach.

Poisoning by Meat Brine.—Brine from meat barrels is sometimes emptied where hogs have access to it and when eaten will cause an intense inflammation of the stomach and intestines. Hogs will not eat too much salt if they have access to it at all times, but the meaty taste of meat brine probably adds to their desire for it, and is eaten in large quantities.

Symptoms.—These develop in a short time. The animal is restless at first, will run from one place to another, lie down and get up again, stamp the feet and squeal. Vomiting nearly always occurs, and a profuse, watery diarrhoea will come on if the hog lives long enough. Convulsions occur, during which it will throw itself around violently and froth at the mouth. The intervals between the convulsions become shorter and shorter as death approaches. The posterior parts are paralyzed and the animal will drag itself from place to place. The duration of the attack will vary from a couple of hours to several days. The animal is sometimes suspected of being mad unless the cause is known.

Lesions.—Upon post-mortem the lining membrane of the stomach and intestines is found loosened, sometimes in masses, and there is intense congestion of the entire wall and the peritoneum in contact with it.

Treatment.—The hog should be given all the water it will drink. Linseed oil in large doses can be given. Flaxseed tea is also useful. To quiet the pain at intervals a teaspoonful of laudanum can be given. Treatment is seldom successful.

Poisoning from Washing Powders.—It is a common practice to save the dish water as slop for pigs. Hogs fed on such slops often sicken and die, the symptoms and course of the disease being very much like cholera.

Symptoms.—These are diarrhoea, vomiting, fever, lameness, partial paralysis, nervous disturbance and death. The course of the disease is from a few hours to several days, apparently depending on the amount of alkali ingested at one time. Death occurs in the majority of cases. This trouble is greatly confused with cholera.

Lesions.—Upon post-mortem examination, the lymphatic glands along the bowel are found swollen and dark colored. The mucous membrane lining the intestines is pale and shiny. Other internal organs are also involved.

Treatment.—The treatment is wholly preventive and consists in avoiding the feeding of slops containing these alkalies.

Poisoning by Eating Cotton Seed.—Fatal results follow the feeding of cotton seed, whether given ground, roasted, raw, boiled or as droppings from cattle. Poisoning, however, is not always observed in hogs following cattle fed on this food stuff. The cause of the trouble has not been discovered, all attempts at getting an active extract having proven unsuccessful.

Symptoms.—The evil effects are not noticed until several weeks, usually four to eight, after using it as a food. In cases that have been observed throughout the whole course, there is first a moping dullness, staggering gait, labored breathing, spasmodic in character and usually called thumps, loss of sight, restlessness, walking in a circle and running into obstructions, lying down flat on the belly, and finally sudden exhaustion and death. In the majority of cases the animals are found dead in their beds or pens ten or twelve hours after they had apparently been in the best of health.

Lesions.—A post-mortem examination gives no definite lesions and fails to show any effect that might be attributed to the hulls.

Treatment.—The only treatment that can be recommended is preventive. Avoid using cotton seed in any form as food for hogs for more than two weeks at a time.

Effects of Eating Wheat and Barley Beards.—Frequently when hogs are turned upon wheat or barley stubble some will die. The symptoms which they will present will vary. In some cases it will be an intense sore mouth, in others a general bowel disturbance, and again in others loud and difficult breathing.

Lesions.—Post-mortem lesions will show beards in the mouth, stomach and windpipe. A roll of beards may form and get down by the side or at the root of the tongue and penetrate the mucous membrane. The animal can not get rid of them, and the parts become intensely swollen and inflamed, interfering with eating and starvation may occur. Plugs of beards may lodge at any point between the larynx and bronchi, producing loud, distressed breathing and coughing. In the stomach there may be a slight inflammation of the lining membrane. Sometimes, however, when beards lodge in the mucous membrane and do not soften and pass away, the inflammation is serever.

Treatment.—When the mouth becomes inflamed, the treatment is the same as in simple stomatitis. Plugs of beards when lodged in the mouth can be removed. If lodged in the air passages or stomach, they can not be removed, and the animal dies from suffocation or an inflammation of the parts.

Effects of Ergot.—Hogs may become poisoned by ergot if fed on grains, such as rye screenings, containing a very large quantity of the fungus. This form of cryptogamic poisoning in hogs is not at all common. It has, however, been reported in several herds in this State.

Symptoms.—The gangrenous symptoms seem to be the most prominent. The extremities, especially the ears and tail, lose their natural warmth and vitality, and deep red spots which in a short time become black and gangrenous, appear in the skin. Soon a portion of the ears and tail die, separate from the living tissue and drop off. These gangrenous spots may appear on other parts of the body as well. Swelling of the eyes, loss of appetite and such nervous symptoms as vertigo, unsteadiness in standing and walking and moaning may also be observed.

Treatment.—The most important part of the treatment consists in cutting off the feeding of the poisonous feed, and feed a more wholesome diet. The medicinal treatment consists in giving tonic preparations in the feed. Iodide of potassium in ten or fifteen grain doses may also be given twice daily.

Effects of Eating Cockle-Burrs.—Numerous articles have appeared in the swine breeders' journals and agricultural papers indicating that young cockle-burrs were poisonous to hogs and calves. While the cockle-burr is young and only three or four inches high it is very fleshy and tender, and relished by stock. The claims of poisoning of stock attracted sufficient attention that the Indiana Experiment Station made a chemical examination and a feeding test to determine the poisonous properties, but in both the results were negative. The young plants, stripped of the burrs, were fed to calves, pigs, rabbits and guinea pigs. They were allowed all they would eat. In no case was any untoward effects noticed. We have been called upon to post mortem some animals claimed to have died from such poisoning, and in all cases death was due to the burrs. A few burrs would be swallowed with the young plants, and their horny prickles would irritate the stomach wall and cause inflammation, which finally terminated in death. In three cases the burrs lodged in the throat and could not be expelled.

Scours in Young Pigs.—Causes.—Young pigs kept in damp, dark, dirty pens are more susceptible to this disease than those kept in clean pens and allowed plenty of exercise, pure air and sunshine. Scours is often caused within the first few days after birth by the feverish condition of the mother affecting the character of the milk. Fermented foods, slops, moldy corn, etc., when fed to the sow will also cause her to give toxic milk. Chilly, damp weather, getting out in the wet grass when young, and artificial feeding are frequent causes. Some outbreaks seem to be due to a germ as in the case in calves and lambs.

Symptoms.—These may set in so soon after birth that it would seem as though the pigs were born with the affection. When delayed until the pig is a few days or a few weeks old, the scours are generally preceded by constipation. The symptoms of the trouble are loose evacuations, grayish in color, which become more and more watery as the disease progresses. The young animal may show some evidence of abdominal pain. The tail and hind parts soon become soiled with the discharges. The appetite may be good at the beginning, but is gradually lost and the pig becomes dull and weak, the back is arched, hair rough and there is indisposition to move about. When the symptoms set in soon after birth it is more apt to prove fatal than if the pigs were several weeks old.

Treatment.—Scours being a disease due largely to bad dietics and hygiene, the preventive treatment is of more importance than the medicinal. This consists in correcting errors in feeding and care. At the time of farrowing the sow should be fed a light easily digested ration. the pen kept clean and dry and the pigs allowed plenty of exercise and pure air. If the scours are due to the feverish condition of the mother or to irritating food, she should be given a cathartic of castor oil (two or three ounces). To check the scours in the pigs, a few drops of laudanum can be placed on the tongue, or a large dose (from one-half to one tablespoonful) administered to the sow. This should be repeated if necessary.

Diarrhoea, Scours, Dysentery.—Diarrhoea in hogs is characterized by frequent and rather fluid evacuations.

Causes.—Sudden changes in the feed, especially to green feed, will frequently cause it. Diarrhoea may occur as a symptom in inflammatory diseases of the digestive tract.

Treatment.—When occurring as a symptom of disease, the cause of the diarrhoea must be removed before we can hope to treat it successfully. In all cases it is best to give a cathartic; castor oil (one to three ounces) or calomel (ten to thirty grains). This should be followed by laudanum (half a tablespoonful), prepared chalk (one-half to one tablespoonful), or nitrate of bismuth (one teaspoonful). The dose may be repeated if necessary.

Constipation.—This is the opposite condition from diarrhoea.

Causes.—Constipation is caused by dry feed, lack of water, fever, paralysis or as a symptom of inflammation of the intestines.

Treatment.—This consists in giving a cathartic of castor or linseed oil. Epsom salts may also be given. The action of the cathartic can be assisted by an enema. Sloppy feed should be fed.

Inflammation of the Peritoneum. Peritonitis. Causes.—Hogs are not as subject to peritonitis as most other domestic animals. It results from the extension of the inflammation from the intestines or other internal organs. Injuries to the walls of the abdomen, exposure to cold, and such operations as spaying and castrating may cause it.

Symptoms.—These resemble those seen in gastro-enteritis. The history of the case may help us in the diagnosis. The hog is feverish and dull, the back is arched, abdominal walls rigid and the breathing short and quickened. There are indications of abdominal pain, especially upon pressure being applied.

Treatment.—The treatment is mainly preventive. Such operations as castration, spaying, etc., should be performed under antiseptic precautions. Wounds involving the abdomen are serious and should be carefully treated. Medicinal treatment is of little use.

Diseases of the Liver. Jaundice. Yellows.—This is not a disease in itself but rather a symptom of disease and is frequently associated with gall stones, parasitic diseases of the liver, inflammation of the intestines and bile duct and congestion and inflammation of the liver. It is difficult to diagnose liver diseases in the hog, and quite impossible to differentiate one from another. For this reason it is best to discuss all liver diseases under the one head, jaundice.

Causes.—Gall stones are occasionally found in the hog and resemble fine sand in appearance. They may, however, occur as small calculi. The causes of gall stones are concentration of the bile or its becoming infected by bacteria, lack of exercise and overfeeding.

Liver flukes and nematodes may obstruct the bile duct as they pass up from the intestines. The former parasite is rare in this country and is seldom the cause of liver diseases in hogs. The round worms are sometimes found in the gall duct.

Inflammation of the bile duct may occur as a complication of indigestion or a catarrhal inflammation of the intestines. The main causes, however, are overfeeding, lack of exercise and decomposed food.

Inflammation of the liver is frequently met with in infectious diseases. It may occur as a complication of indigestion. Certain microorganisms entering the digestive tract along with the food and finding their way to the liver may cause it to become inflamed.

Symptoms.—Any condition raising the pressure in the bile ducts or lowering the pressure in the blood vessels of the liver will cause bile to be taken up by the circulation and carried to the different tissues of the body, staining them a yellow color. This is quite noticeable in the areolar tissues beneath the skin and in the fat. This condition is sometimes met with in apparently healthy hogs killed in the abattoir. A staining of the visible mucous membranes and the skin cannot well be observed in the hog. Sometimes the coloring matter of the bile is present in the urine, and the normal function of the kidneys is disturbed. Constipation usually occurs and the feces have a more disagreeable odor than normal. When occurring as a complication of other diseases, the liver symptoms are usually overshadowed by the original disease.

Treatment.—The treatment is about the same as in indigestion. As a cathartic calomel can be administered in from one to ten grain doses and repeated every other day for a few days.

Diseases of the Urinary Apparatus. Congestion of the Kidneys. Causes.—Congestion of the kidneys as a result of injury is not uncommon in hogs. Blows and kicks in the region of the back or injuries occurring as a result of their piling up on each other, are among the common causes. Exposure and wet, cold quarters, as in other domestic animals, may also cause it. It may occur as a complication of some infectious disease.

Symptoms.—The pig shows a disposition to lie down most of the time. The hind parts move stiffly, and the gait is stiff and straddling. Urine is passed frequently and in small quantities. It is higher colored than normal, and may be tinged with blood. If due to an injury, the symptoms appear soon after it has occurred.

Treatment.—Preventive measures consists in avoiding as much as possible conditions that may cause the disease. The hog should be given dry, comfortable quarters and fed on slops. It is well at the beginning to administer a cathartic of castor oil (one to four ounces). Hot water fomentations may be applied to the back and loins.

Inflammation of the Kidneys. Causes.—These are very much the same as in congestion of the kidneys. Irritating foods, drugs such as turpentine given internally and applied locally, and pathogenic germs conveyed to the kidneys by the circulation or entering the kidneys by way of their excretory apparatus are also factors.

Symptoms.—The back of the hog may be quite sensitive to pressure. When it stands, the back is arched and held stiffly. The temperature may be elevated and the respirations and the pulse beats quickened. The urine is scant and highly colored. Convulsions may occur. Chronic inflammation of the kidneys may develop very slowly without giving rise to any noticeable symptoms until the disease reaches the later stages. Large abscesses are occasionally found in the kidneys of hogs apparently in perfect health when killed.

Treatment.—The preventive and medicinal treatment is much the same as in congestion of the kidneys. To insure free action of the bowels small doses of castor oil (from two to four tablespoonfuls) should be administered frequently. Diarretics should also be given.

Diseases of the Bladder.—Retention of the urine and inflammation of the bladder (cystitics) is sometimes met with in the hog. The retention of the urine may be due to spasm of the neck of the bladder, a cystic or urethral calculus, or from a tumor pressing on the urethra and preventing the flow of the urine from the bladder.

Treatment.—The treatment in both cases is to remove the cause if possible. Inflammation of the bladder is due to the retention of the urine and irritation from bacteria. To relieve the irritation, chlorate of potassium in from fifteen to thirty grain doses can be given twice daily. Pressure on the urethra by a tumor can be relieved by an operation in some cases. Keep the animal quiet and feed mostly sloppy food.

Diseases of the Spleen.—Inflammation of the spleen is frequently mentioned in the older works on veterinary medicine, and an elaborate line of symptoms is sometimes given in connection with the disease.

Hypertrophy, atrophy and rupture of the spleen is recognized only by a post-mortem examination. These conditions may arise from injury or the extension of inflammation from neighboring parts. Splenic hypertrophy is frequently seen in connection with high feeding and infectious diseases. Tumors of the spleen may cause it to become larger than normal.

Diseases of the Respiratory Tract. Cold in the Head. Nasal Catarrh. Causes.—Exposure to cold, especially if in an overheated condition, or if the body is wet by rain, is the most common cause of catarrh. Hogs overcrowded in pens or allowed to sleep around straw stacks or manure heaps are apt to suffer as a result of overheating and becoming chilled or by irritation from the dust and noxious gases generated under these conditions. This is especially true during the cold, wet weather, when they pile up to keep warm.

Symptoms—The hog may act dull, the body temperature may be elevated, and the eyes appear red and watery. The nasal mucous membrane becomes red and dry, and the hog sneezes frequently. This dry stage lasts for a short time, and is followed by a watery discharge from both nostrils. In the more severe cases this is succeeded by a thick whitish or yellowish discharge. If this continues for some time the mucous membrane becomes markedly changed and ulcers form. Severe outbreaks due to or are aggravated by disease producing germs are known as malignant catarrh. Nasal catarrh does not run a well-defined course, and may extend to other parts of the respiratory tract.

Treatment.—In the simple form of the disease medicinal treatment is not necessary. The hog should be fed warm slop for a few days and a laxative (castor oil) administered. In severe cases in addition to this inhalations of medicated steam (turpentine or creolin) may be given.

Sore Throat. Pharyngo-Laryngitis.—The causes and symptoms of inflammation of the pharynx and larynx in the hog are very much the same. This is also true of tonsilitis. All of these structures are frequently involved at the same time, and can be discussed conveniently under the one head, sort throat.

Causes.—Sore throat frequently occurs as a complication of a bad cold. In addition to those already mentioned as causes of cold in the head, are wallowing in cold springs and creeks when warm, being deprived of water and slops during the warm, dry seasons, close, filthy pens, debility, entrance of septic germs along with the food and germs of hog cholera and swine plague.

Symptoms.—There is more or less fever, the eyes are red and watery and the animal is dull and may lie around the pen most of the time with its head buried in the litter. The appetite is poor and the hog may refuse food. This is chiefly due to the pain and difficulty in swallowing. Sometimes there is considerable restlessness. The respirations are noisy and the throat swollen. The cough may be dry, hard or spasmodic in character, often quite hoarse. There may be a discharge from the nose or mouth. In septic poisoning in the food and in infectious diseases, false membranes may form or the mucous membrane become gangrenous. The disease may develop rapidly and the air passages become closed by the swelling in a few hours and the pig die. Sometimes the animal dies as a result of the local ulceration or from general infection. In the less severe cases the disease runs a course of a week or more. In this latter form, if not caused by pathogenic organisms, recovery usually occurs.

Treatment.—The sick hog should be isolated from the healthy ones and given clean, dry, comfortable quarters. This part of the treatment is very important if the inflammation is due to septic organisms. Sloppy food should be fed. In cold weather this should be warmed. Mild, stimulating liniments can be applied to the throat. In some cases the throat can be covered by sheep skin or a heavy flannel bandage. Sometimes a blistering ointment (powdered cantharides one part and vaseline eight parts) is applied to the skin in the region of the throat. An electuary made of syrup, three ounces, and tincture of aconite, two drams, can be given in teaspoonful or tablespoonful doses three times daily. By confining the hog with a noose around the upper jaw the throat can be swabbed out with antiseptic washes (silver nitrate one part, water one hundred parts) or permanganate of potassium (two parts, water ninety-eight parts). It is best to make the handle of the swab of wire or the hog may bite it in two. In acute attacks, or when the inflamed parts become gangrenous, treatment is of no use.

Bronchitis. Causes.—These are the same as in common cold or sore throat. Bronchitis is frequently caused by irritation from dust or parasites.

Symptoms.—In the acute form the body temperature is elevated and the appetite impaired. The breathing is usually distressed and coughing frequently occurs. The disease does not run a definite course and may become chronic if the exciting causes are kept up. In this form of the disease the pig does not thrive as it should, and when the air passages are irritated in the least by dust, etc., it will cough violently. Coughing is especially prone to occur upon leaving the bed or after exercise. Pigs seldom die of this affection.

Treatment.—This is largely preventive. Good food and care are about all the treatment necessary.

Pneumonia. Causes.—The common causes of other respiratory diseases may cause pneumonia. Plethora is the principal predisposing cause. Among the exciting causes can be mentioned fatigue and impure air. In young hogs the lung worm will frequently cause a lobular pneumonia.

Symptoms.—Pneumonia may come on quickly, beginning with a chill and attended with a high fever, or as a complication of some other respiratory disease. The hog will remain down most of the time hiding under the litter and will eat nothing or but very little. The respirations are hurried. Exercise is followed by marked exhaustion, sometimes by death. The cough is at first deep and dry, later more moist. During the first stage of the inflammation, the period of congestion, the cough may be accompanied by hemorrhage. Other symptoms will be revealed in thin, quiet hogs, by listening to the lung sounds (auscultation). This can be done by placing the ear to the side of the chest. In the very earliest stages of pneumonia a crepitating sound may be heard in the diseased area, later when the engorgement of the air cells occurs, the healthy murmurs and the crepitating sounds are deadened. When the lung tissue is returning to the normal state, the crepitating sounds can again be heard. The disease may involve one lung or part of both. The chances of recovery are better in lean than in fat hogs, as the disease is usually less severe. The attack runs a course of from ten days to two or three weeks.

Treatment.—The hog should be given a comfortable pen and kept as quiet as possible. If it will eat, a light sloppy diet should be fed. To keep the bowels loose, from one to three ounces of castor oil can be administered occasionally. As a counterirritant to the sides of the chest the following liniment can be used; oil of turpentine, ten parts, croton oil, one part. If the heart action is weak, from five to ten drops of tincture of digitalis can be given every three or four hours. During the convalescent stage, if the animal appears weak, alcoholic stimulants can be given.

Pleurisy.—This is an inflammation of the membrane lining the chest cavity and covering the lungs.

Causes.—Pleurisy may develop during the course of pneumonia. Sudden chilling of the body, especially if overheated, exposure to cold and damp pens are common causes. It may occur in the different contagious diseases (hog cholera, swine plague and tuberculosis).

Symptoms.—The early symptoms of the disease is chilling. Sometimes the hog is lame in one or the other of the fore legs, and when it walks appears stiff. The appetite is poor and the hog is restless or lies down most of the time. The breathing is highly characteristic. The ribs are held rigid and the respirations are short and jerky, the movement being noticed mostly in the flank. The body temperature is higher than normal, the pulse quickened and the cough in paroxysms, but rather suppressed. Pain is a very prominent symptom. When the sides of the chest are pressed upon with the hand the hog will flinch, sometimes grunt or squeal. On auscultation friction sounds are heard. In cases where there is an outpouring of fluid into the chest cavity (hydrothorax), these sounds are not heard, and all respiratory sounds toward the lower part of the chest are deadened. If much fluid accumulates in the chest cavity the symptoms of pain are diminished, but the respirations are more labored and the pulse weaker. Toward the later stage of the disease the hog is greatly depressed. When made to get up, it may squeal. Frequently it is seen lying on its side, as though it were dead. The course of the disease is from one to two weeks. In mild cases and when only a part of the pleura is involved the symptoms are less severe.

Treatment.—Good care at the beginning of the attack will help in aborting it. The hog should be placed in a warm, clean pen and made as comfortable as possible. In a warm pen and when the hog is quiet, warm packs can be applied to the sides of the chest and the hog covered with a blanket. The medicinal treatment does not differ greatly from that recommended in pneumonia. A teaspoonful of syrup of squills and from three to six drops of tincture of aconite can be given three times daily. Sulphate of quinine, five to twenty grains, and nitrate of potassium, ten to fifteen grains, can be given every four hours. The same blistering liniment as recommended in pneumonia can be applied to the walls of the chest. A physic should be administered early in the attack. A light, sloppy diet should be fed.

Diseases of the Heart.—Diseases of the heart are not uncommon in the hog. Inflammation of the lining membrane (endocarditis) and the covering of the heart (pericarditis) and sometimes inflammation of the heart itself is met with in pleurisy, pneumonia, rheumatism and specific diseases (hog cholera, swine plague, etc.)

Symptoms.—These are high temperature, depression, severe pain and palpitation. Occurring as they do as complications of some other diseases, they are usually overshadowed by the original disease. The prognosis is unfavorable.

Fatty Degeneration of the Heart. Causes.—Fatty degeneration of the heart is due to overfeeding and lack of exercise. The fat accumulates in masses around the heart and in the muscular tissue, the natural structure being replaced by fatty granules.

Symptoms.—In this disease the heart action is weak and irregular. The hog is unfit for any kind of exertion, and may die suddenly if this is attempted. Palpitation may occur.

Symptoms.—The treatment is wholly preventive and consists in avoiding such conditions as may cause the disease.

Palpitation. Spasm of the Diaphragm. Thumps.—True palpitation is a sudden violent beatings of the heart not connected with any structural disease of the organ. It sets in suddenly, the cardiac sounds are louder than normal, the beats are quickened and the animal may be restless and appear anxious. This affection sometimes occurs during the course of some digestive disorder. Excitement and exercise may also cause it.

Spasm of the diaphragm is quite common in pigs. Digestive disorders, especially overloading of the stomach, and lack of exercise are the main causes. A number of the pigs in the litter or the same pen may become affected at the same time. This is especially true of litters not given sufficient exercise.

Symptoms.—There is a sudden jerking movement of the flank. When the pig is standing quietly this is very noticeable, and may be of such violence as to move the body backwards and forwards. It may be accompanied by a sound that can be heard some distance. These contractions are not rhythmical, but may be much more frequent at one time than at another. After exercise the jerking is more violent and is more pronounced after a full meal than when the stomach is empty. Thumps interfere with the pig's appetite to a certain extent, and it does not thrive as it should. In some they lose flesh quite rapidly and become very thin. The course of the disease is from a few days to a few weeks.

Treatment.—Exercise alone will generally affect a cure. When the disease develops in a litter they should be turned on pasture and given plenty of opportunity to run around. If this can not be done they should be given exercise in some other way. From three to fifteen drops of tincture of opium can be administered in a little oil every three or four hours until relieved. It is generally best to administer a physic at the beginning of the trouble; from one to two tablespoonfuls of raw linseed oil.

Diseases of the Nervous System. Congestion and Anemia of the Brain. Causes.—In this disease the blood vessels of the brain become engorged with blood. Fat plethoric hogs are predisposed to this condition. The exciting causes are sunstroke, exertion, tumors and parasites pressing on the brain and blows on the head. Congestion may occur in some of the specific diseases.

Anemia of the brain is due to an insufficient amount of blood in the brain, and may be caused by a weakness in the heart action or abundant hemorrhage.

Symptoms.—These generally come on very suddenly. The hog shows symptoms of excitement and sensitiveness or appears dull and drowsy. Death may occur in a short time. Apoplexy due to rupture of capillaries in the brain sometimes occurs. The disease tends to merge into an inflammation of the brain.

Treatment.—Place the hog in a cool place and apply water or ice to the head. Bleeding at the beginning may be followed by good results. As a purgative four or five ounces of linseed or castor oil can be given. The after treatment consists in keeping the hog quiet and in a cool, comfortable place. In anemia of the brain the medicinal treatment is along the line of stimulants and wet applications to the head are contraindicated.

Inflammation of the Brain and Its Membranes. Encephalitis. Causes. —As causes of this disease can be mentioned high temperature, as in summer, unusual exercise, sudden changes in the feed, overfeeding, parasites (cysticercus), unsanitary conditions and injuries to the head. Inflammation of the brain occurs in some infectious diseases. It may follow a congestion of the brain.

Symptoms,—They usually set in abruptly, the hog apparently in perfect health will, within a few hours manifest serious symptoms of a nervous disorder. The disease is usually ushered by a period of dullness. In some cases, however, the hog appears nervous and excited from the first. During the period of excitement or delirium, the hog champs its teeth, froths at the mouth, walks or runs about the pen, generally in a circle, and without showing much ability to dodge obstructions. It will squeal or grunt, try to climb up the sides of the pen, press its head against the wall or fence, and finally fall over in a convulsion. It may regain its feet in a short time, or lie in a stupor which usually ends in death. The gravity of the disease cannot always be judged by the frequency and violence of the attacks, as often when the hog is sleepy and drowsy from the first it rapidly proves fatal. The course is usually short and the prognosis unfavorable.

Treatment.—A large dose of salts should be given early in the attack. Bleeding and cold applications to the head prove of some value by lessening blood pressure in the brain. The pen should be dark and cool. When the disease terminates in paralysis, iodide of potassium, twenty grains, and tincture of nux vomica, ten to twenty drops, can be given in a few ounces of water three times a day.

Apoplexy.—Apoplexy may occur in hogs that are in a very fat condition, and is due to a rupture of a blood vessel in the brain. It sometimes happens as a result of congestion of the brain. When this accident occurs the hog drops suddenly, becomes unconscious, and is usually dead in a short time.

Vertigo. Blind Staggers.—Vertigo may be associated with diseases of the brain and its membranes, such as anemia, congestion, tumors and parasites (cysticercus), especially the latter.

Symptoms.—These are attacks of blindness, jerking upward with the head, turning in a circle or rotating on the longitudinal axis of the body, running straight ahead and finally falling on the side or rolling over and over. When due to parasites, the hog turns to the side on which the parasite lies and the attacks are apt to occur at any time.

Epilepsy. Spasms. Fits.—This disease is characterized by sudden loss of consciousness, convulsive movements, etc. In the intervals between the attacks the hog may appear in good health.

Causes.—Epilepsy may be due to lesions of the spinal cord or brain. It is sometimes transmitted from the parents to the offspring and inbreeding is also thought to cause it. Intestinal worms are probably the most common cause of spasms in young pigs. It may also occur as a result of dentition.

Symptoms.—The pig may be restless previous to the attack. The convulsive contractions generally begin in the muscles of the head and extremities. Jerking of the muscles of the face, champing of the jaws and an unsteady gait is noticed at first. Suddenly the pig falls, consciousness is lost, the limbs are extended and the seat of convulsive movements, the head may be thrown back, saliva runs from the mouth and urine is passed. Because of the respiratory muscles being involved the animal has great difficulty in breathing. In mild cases the convulsive movements are feeble and may cease in a few seconds. Usually the attack lasts several minutes. The hog may get up and act as though nothing had happened or act dull and sick for several days. There is some danger of the pig dying in an attack. Sometimes during a seizure the other hogs in the pen will kill it.

Treatment.—The spasm may be stopped by throwing cold water on the pig's head. or, better, immersing its body in warm water. The pig should be kept as quiet as possible between attacks. A cathartic of castor oil should be given. Until the stupor has completely passed, it is best to give from a dram to half a dram of bromide of potassium in the feed, or drench twice daily. As soon as it acts well it can be turned out with the rest of the herd.

Chorea.—This affection is commonly seen in young pigs, but may develop at any age. The causes of the disease are not definitely known. It is more commonly seen in weak, poorly developed or deformed pigs, especially those having a bulging forehead and showing a tendency toward hydrocephalus.

Symptoms.—Chorea is characterized by spasmodic movements of some part of the body, as the head or one or more legs. The head is often affected and is jerked to one side. It may be accompanied by wry neck. The jerking may come in quick succession, or there may be considerable interval between jerks. The attacks may become spasmodic, that is, very bad part of the time and only slightly so at other times. The jerking takes place more or less constantly during the waking hours. If a leg be affected it will be drawn up and put down suddenly, keeping up the motion more or less constantly while standing. There will also be some twitching when lying down and not asleep. Often when pigs are so affected, although in good condition when the trouble begins, they become thin and puny.

Treatment.—The best treatment is to turn the affected pig out on clover pasture and give it plenty of milk. As the pig grows it may gradually get better without medicinal treatment. Good results may follow the administration of tincture of asafoetida in half tablespoonful doses two or three times a day.

Sunstroke or Heatstroke.—Hogs, especially fat hogs, when driven on a very hot day, or handled or shipped some distance, are apt to be overcome with heat. If kept in a pasture unprovided with shade they may suffer severely from the sun.

Symptoms.—The principal symptoms are fatigue, dropping of the ears, staggering gait, sudden collapse and unconsciousness and death. Convulsions may occur, and death generally follows in a short time.

Treatment.—The preventive treatment consists in not handling fat hogs during the hottest part of the day in the very warm weather, and providing the hog pasture with some shade. When hauling hogs in hot weather frequent wetting with cold water will help in keeping them cool. If overcome by the heat it is best to move the hog to a shady place, and pour cold water on the head, but not upon the body. As a stimulant alcohol (one tablespoonful) or tincture of nux vomica (one teaspoonful) can be given in a little water.

Paralysis of the Posterior Part of the Body. Causes.—Small centers of inflammation in the spinal cord due to injuries in the region of the back will cause a paralysis of the hind parts. Pressure on the cord from tumors, parasites (cysticerous) or an overfat condition will also cause it. It is not uncommon for paralysis to occur among a number of hogs in a pen or when shipped in cars or in a crate. Lack of exercise, indigestion and constipation are said to cause this condition. This disease is usually called "kidney disease."

Symptoms.—The paralysis may develop suddenly or come on gradually and nearly always involves both hind legs. When the disease develops slowly the first symptom noticed is an unsteady gait, the hind legs do not follow exactly in line with the front ones, become crossed or instead of walking directly forward the body appears to go sidewise. After lying down there is more or lesss difficulty in getting up. The symptoms become progressively worse until the hog simply drags the hind parts. If the paralysis develops suddenly the pig is found dragging the hind parts and unable to get up on the hind legs. The appetite is usually good in the early stage and may remain so. Pressure over the affected region does not cause the animal pain. Sometimes it will squeal when moved. The appetite may become poor and the bowels constipated, depending upon the extent of the lesions. If recovery does not take place within a few days or a week the case is not apt to terminate favorably.

Treatment.—This consists in moving the hog to a comfortable pen where it can not be disturbed and feeding it mostly on slops. It is very necessary that no dry feed be given in order to prevent constipation. Early in the disease a cathartic of Epsom salts should be given and repeated if necessary. This may be supplemented with an enema of water and glycerine. From five to ten drops of tincture of nux vomica should be given two or three times a day. Counterirritation along the back by means of blistering liniments (oil of turpentine ten parts, croton oil one part) and the actual cautery can be used. Dr. Peters, of Nebraska, recommends the use of the actual cautery. To fire the back of a hog, number sixteen wire can be used. There should be fifteen or sixteen pieces about a foot in length and slightly pointed at the end. The pointed end of these should be placed in a charcoal or corn cob fire and heated to a white heat. When ready for use, they can be held in a pair of pincers, and the skin punctured at points an inch or two apart in the region of the loins. The firing must be through the skin and into the tissue beneath, or it will not give satisfactory results. The hog should not be forced to walk as it will retard recovery. After becoming able to walk, keep it away from the other pigs for a few weeks.

Diseases of the Generative Organs. Sterility. Barrenness.—Sterility may exist in the male or female and may be temporary or permanent.

Causes.—In the male impotency may be a functional trouble, due to improper development of the sexual organs or a broken copulatory organ, to fatty degeneration or infiltration of the testicles, lack of physical or functional exercise and old age.

In the female sterility may result from a greater variety of conditions than in the male. Excessive fattening as is sometimes seen in sows fitted for exhibition purposes will cause it. This may be due to the ovaries becoming so infiltrated with fat as to cease being functional or to an occlusion of the passages with fat. In the former case the change is so great that nothing will insure a complete return to the normal, in the latter the function can be restored by reducing the condition of the sow. Sometimes a rigid os prevents the entrance of the seminal fluid into the womb. Such a condition may occur in young sows or when they become old. Inflammation of the lining membrane of the uterus or vagina may also cause it. In this condition a discharge is sometimes seen, but usually is so slight as to escape notice. The vitality of the male element is destroyed during its passage by the abnormal secretions. In old age barrenness occurs. Faulty development of the generative organs is not uncommon in sows. The uterus may be abnormally small, the ovaries rudimentary and the vagina and os imperforated. In these cases the sow may never come in heat and never conceives.

Treatment.—Excessive fat is a frequent cause of sterility in both the male and the female and must be overcome by dieting and exercise. The male should not be used to excess and should be kept in a healthy vigorous condition. If the os is rigid and closed, preventing the entrance of the seminal fluid into the womb, it should be dilated. Closure of the maternal passages by fat can be overcome by a proper diet and plenty of exercise.

Abortion.—Abortion or slipping of pigs is sometimes a troublesome problem with which to deal. There seems to be two varieties in these animals, the same as in other domestic animals, sporadic and infectious. The sporadic form is the variety most often met with and is due to accidents, as slipping, falls, being kicked by a horse or hooked by a cow, by being run by dogs, or worried by other sows in heat, or by a boar, to spoiled or musty food, to "piling up" in bed, to sudden exposure to cold and to the effects of some other disease, as cholera. It can readily be observed that these causes will not as a rule act upon many sows in the same herd with sufficient violence to cause abortion, as the sow does not abort easily. After an outbreak of cholera we expect a considerable percentage of abortion. While an infectious abortion of the sow has not been described, the Station has been the recipient of several accounts of such troubles that could not be accounted for upon any other hypothesis. In these cases a greater or less percentage of the herd would be affected, and, like barrenness, the trouble is much more frequent some seasons than at others.

Symptoms.—The symptoms of abortion when due to accidental causes are great uneasiness, shivering, making of a bed, violent straining and groaning. The parts are unprepared for the accident and therefore are associated with considerable pain and occupies several hours. If the abortion occurs within the first two months a discharge of blood and a macerated foetus and membrane are all that will be found. After two months the foetuses will be entire. In some cases there will be a loss of appetite and an indisposition to move about for a few days, while in others the disturbance is so slight as to be scarcely noticeable. In the infectious form of the disease the genital tract seems to be prepared and there is less disturbance than in normal labor, and unless the swollen genitals and the expelled foetuses are seen the first warning of such an accident may be the recurrence of heat. Infectious abortions seem to occur most frequently at the end of the second month. Very little can be done to arrest the act, and without knowing the cause it is hard to prevent. It is a wise measure in all cases to remove the aborting sows from the herd. upon the assumption that it may be infectious and that the presence of such an animal may be a menace to the others.

Mammitis. Garget. Causes.—Inflammation of the udder may occur in heavy milkers, due to the fact that all of the milk is not drawn. This condition may exist when a part or all of the litter dies. Obstructed teats will sometimes cause it. Following a difficult case of parturition the udder will sometimes become inflamed.

Treatment.—Remove as much milk as possible and bathe the udder with hot water for twenty minutes several times a day. Knead the parts thoroughly. As a local application use a dram each of tincture of belladonna and spirits of camphor in two ounces of lard; rub well when applying it. A cathartic of Epsom salts or castor oil should be given every other day until the condition is relieved. If the teats are sore, white lotion (one part zinc sulphate and three-fourths part lead acetate to thirty parts water) will prove serviceable.

Diseases of the Skin. Urticaria. Causes.—Unhygienic conditions and irritation to the skin from lice and drugs may cause acute or chronic inflammation of the skin. Young pigs are predisposed to it. Urticaria may be seen in the different specific diseases, as cholera and swine plague.

Symptoms.—The blotches come on the skin very suddenly, usually in the night and appear as red, hot, swollen spots that may run together and form very large spots. The spots are seen on almost any part of the body. On account of the itching, the hog will scratch upon any convenient object. The surface may thus be abraided and the case aggravated. In the light cases the trouble will pass off about the second day without the formation of pustules. In the more severe form, pustules develop and it requires a week or more to make a recovery. The appetite is usually impaired and the hog is feverish. This disease is not contagious.

Treatment.—Two or three ounces of Epsom salts can be given and the hogs fed a light sloppy diet. If dirty or lousy, they should be dipped or washed with a water solution of some of the creosol preparations. In severe cases ten drops of Fowler's solution of arsenic should be given twice daily.

Eczema. Pitch Mange. Causes.—This disease is associated with unhygienic conditions, filthy pens, extremes of heat and cold, and a debilitated condition. It may also occur in specific diseases (hog cholera, articular rheumatism, etc.).

Symptoms.—The disease starts by small red spots on the skin. These are followed by vesicles (blisters) which in time becomes pustular. Finally these dry up and form thick crusts which gradually wear down and become thin and branny. All stages of the disease may be seen on the skin at the same time. There is intense itching and the hog may have a slight fever, a poor appetite and act dull.

Treatment.—This consists in bettering the hygenic conditions under which the hogs are kept and either washing or dipping them in a water solution of some of the coal tar preparations. The washing or dipping should be repeated at frequent intervals.

Skin Warts.—Warts are simply piled up epidermal cells and are best removed with a knife. A preparation of a dram of salicylic acid in an ounce of castor oil rubbed on once or twice a day for a couple of weeks may remove them.

Sore Tails. Causes.—The causes of sore tails and tails dropping off are cold, filth and injuries. When young the tail may become injured by the mother stepping on it. Old hogs when allowed to wallow in the mud may loose a portion of their tails from the mud balls that accumulate toward the ends. Loss of the tail is frequently associated with an unthrifty condition.

Treatment.—This is preventive. If the pens are filthy, they should be cleaned and antiseptics used freely. The loss of the tail is of little consequence to the ordinary hog but for those used for show purposes or to be sold as breeders, it becomes a blemish.

Diseases of the Locomotory Organs. Articular and Muscular Rheumatism.—Articular and muscular rheumatism are so frequently associated in the hog that it is best to discuss them together. Although hogs live under favorable conditions for the development of rheumatism, they do not often develop the disease. This is probably due to the protection afforded by the subcutaneous fat.

Causes.—This disease is attributed to cold, damp pens and exposure, but it may occur in hogs when well managed. Overfeeding is also said to cause it. Rheumatic symptoms are frequently noticed at the beginning of an outbreak of hog cholera.

Symptoms.—The muscles and joints may both be involved, and the symptoms quite marked. There may be fever, loss of appetite and a general lack of condition. The lameness will move about and may involve one or more of the legs. Sometimes there is considerable swelling of the hock, the knee or the joints of the feet. If the muscles of the back are involved, it is arched and very tender on manipulation. Stiffness in the gait is present, especially if the quarters are involved. The pain in the muscles and swollen, inflamed joints is intense and the hog will sometimes squeal when the parts are handled or the joints flexed. While the hog is asleep there may be sudden contractions, indicating pain due to the relaxation of the muscles. On account of the pain and difficulty in walking the hog will lie around the pen most of the time and refuse to go far for his food.

Treatment.—Preventive treatment is very important. It means the providing of dry, comfortable quarters and the avoidance of exposure. The straw stack should be avoided as a shelter for hogs. Sick hogs should be given good quarters and kept as quiet as possible. A cathartic of castor oil should be given. Salicylate of soda can be given in twenty or forty grain doses three times daily. Recovery occurs in from two to three weeks. The disease may become chronic.

Rachitis, or Rickets.—This condition is due to a lack of development of the bones. The mineral matter is not deposited in the normal proportion. It is seen in growing pigs after weaning. It is rare before weaning. It most often occurs in those that receive an almost exclusively corn diet with no milk and no pasture. It is seen more often in winter than in summer because the conditions enforce the penning and feeding of the pigs at that season. It is also seen in some litters which might indicate that it was hereditary.

Symptoms.—The disease is characterized by weakness of the bones, bending of the legs, breaking down upon the feet; there may be either a dropping or arching of the back, a spraddling gait, distorted face, bulging forehead, sniffles and paralysis. Such pigs are nearly always fat at the beginning. The disease does not tend to destroy the animal quickly, as it is a slow progressing disease.

Treatment.—The treatment as far as it can be of service, is to feed less fattening food and substitute milk, oats, rye, and a little oil meal. An abundance of salt, wood ashes and air slaked lime should be available.

Sniffles, Snuffles, Bullnose.—It is evident from the descriptions given that all writers are not agreed upon the nature of this affection. There are two varieties of the affection—the catarrhal and the rachitic.

In the catarrhal we have a more or less wheezing, respiration occuring at irregular intervals. There is a profuse, watery discharge from the nostrils, causing the animal to blow violently when first getting out of bed or after eating. The animal can not exercise freely owing to the difficult respiration. The attacks which are mild and of intermittent character at first, become more severe and the condition is persistent. The discharge changes from a thin water secretion to one containing blood, to thick mucus, and finally yellowish or purulent. Nose bleeding is frequent, owing to the violent efforts to clear the nose. There is a cough, the eyes become red and the tears flow, the hair roughens and the whole appearance is "dumpish." There is difficulty in seizing, grinding and swallowing the food, owing to the soreness of the mouth and throat. The trouble runs a course of from one to five weeks and death comes from starvation or asphyxia. Those that recover nearly always remain stunted. A post mortem examination of such a case shows the mucous membrane lining and nasal chambers to be greatly thickened, practically blocking the air passages. The turbinates and the septum become so crowded by the uneven pressure that they are deformed. The effect is to produce a blunt, thickened, more or less twisted nose, depending upon the uneven changes in the different bones.

In the rachitic form we have essentially the same changes take place in the nose, and in addition there are changes in the bones in other parts of the body. The legs become curved and misshapen, and often there is breaking down on the feet. Not infrequently, too, there will be bulging of the bones of the head, as in hydrocephalus.

Cause.—The cause of the trouble is not definitely known. By some all the cases are regarded as being primarily due to lack of development of the bones in the nose, thus predisposing to catarrhal trouble. Others consider that the trouble may be catarrhal from the beginning, due to catching cold, and that the changes in the bones are secondary. The writer is of the opinion that some cases belong to one class and some to the other. The disease is sometimes described as being contagious, but we are not in possession of facts to justify such a statement. It is more probable that the conditions which give rise to the trouble in one pig may also affect others. It is frequently observed to affect all the pigs belonging to one litter, but I have never witnessed the trouble pass from the pigs of one litter to pigs of another. It has also been observed in four successive litters from the same mother, thus showing a hereditary tendency. There were also other evidences of rickets present. We find this trouble in pigs kept under good hygenic conditions as well as in those that are subject to exposure and poorly nourished, and it is more common in those breeds with stubby, turned-up noses than of the straight variety.

Treatment.—The best treatment is to destroy such pigs. It will end their misery and save expense. The majority will die and those that recover will not be worth feeding in nine cases out of ten. Those who wish to try to save them should put the pigs upon a good pasture and feed sweet milk. Corn should not be given, or, if it be given, there should be oil meal added to balance the ration. If pasture can not be secured, provide a dry, warm pen. Keep the bowels open as the symptoms may indicate. Fumigate with burning tar and apply tar about the feed troughs. An ointment composed of equal parts turpentine, kerosene and ammonia in sufficient lard to make it stiff has been recommended as an application to the face. This is repeated twice a week for a month.

Sore Feet. Causes.—If hogs are kept continually on hard floors or driven over hard, rough roads the feet may become inflamed and bruised. Standing in filth may cause the feet to become sore, the moisture softening the tissue at the upper margin of the wall, in the interdigital space and at the heel.

Symptoms.—The hog flinches a great deal when it walks, goes quite lame. This is especially true of heavy hogs. If the pain is severe it may lie down most of the time. On making a local examination, the claws may be found long and overgrown at the heel and the space between the claws is swollen, sore and inflamed.

Treatment.—When caused by hard floors simply turning them out on pasture will effect a cure. If the pens and yards are filthy, they should be changed to clean, dry pens and the feet freed from all filth, and washed once a day with a watery solution (four per cent.) of some of the cresol preparations; or with chloride of zinc (one teaspoonful to the pint of water). It is very necessary that the hogs be kept in a clean, dry place until well.

Difficult Parturition.—Difficult birth is not as common in the sow as in the larger domestic animals. This is because the pelvic cavity through which the fœtus passes is large in comparison with the size of the young. A roomy pelvic cavity, however, does not always insure an easy birth, and when the laws of nature are ignored and but little attention paid to the hygiene of pregnant animals, there will be plenty of cases of difficult parturition.

Causes.—The most common cause of difficult parturition in young and fat sows is a large fœtus and a narrow maternal passage. Breeding young, small sows to large males is a frequent cause. Other causes are malpresentations, monstrosities, and diseases of the fœtus (hydrocephalus, emphysemia, etc.). Emphysematous conditions are met with when the act of parturition has been prolonged and the fœtus is dead and undergoing decomposition. The only malpresentation met with is the transverse. In this presentation instead of the head or breech presenting it is the side, back, or belly. In prolonged parturition the maternal passages become dry and the passage of the fœtus along them is greatly interfered with. In case of debility and exhaustion, the expelling powers are weak in comparison with the resistance to be overcome, and but little progress is made. A dead fœtus acts as an obstacle to a rapid birth.

Treatment.—At the time of birth the sow should be in comfortable quarters where there will be no chance of her being disturbed by other animals, and where necessary assistance and care can be given without the attendant undergoing too many discomforts. The act of parturition may be prolonged and progress very slowly without there being any obstacle to birth. The tendency on the part of the owner should be not to meddle too soon, but wait until nature has had a fair chance. In nearly all cases the sow is quiet and in the recumbent position and her condition can be judged by the progress made during the labor and an exploration of the parts with the hand. Before making an exploration, the hands should be washed and the fingers smeared with vaseline. If necessary the finger nails should be shortened. When the hand is large and the passages narrow, the fingers are all that can be inserted. This will be sufficient to judge the condition of the maternal passages and the position of the fœtus, if it has gotten as far back as the entrance to the pelvic cavity or into the passages. The explorer should conduct his examination with all the care, attention and gentleness possible, and take time to assure himself of the true state of affairs. After becoming satisfied as to the conditions present, we should give the required assistance. We should not go too far in assisting her, and not attempt to do what nature herself could not accomplish under more favorable circumstances. For instance, if the fœtus is so large or deformed in such a way that it can not pass through the entrance into the pelvic cavity, we should not attempt it. In case the sow is restless she should be given a tablespoonful of tincture of opium. This can be repeated if necessary. If the parts need dilating, fluid extract of belladonna can be smeared on the os. Dry, feverish passages can be moistened by injecting into them, with about an eight ounce syringe, soapy, warm water. The further forward the fluid is thrown the better will be the results. If the expelling forces are not sufficient to expel the fœtus and there is no obstacle to birth, the force can be increased by administering to the sow from half a dram to a dram and a half of extract of ergot, and repeating the dose in half an hour if necessary. We must remember, however, that this drug must not be given if there is undue resistance to birth, and unless the animal is exhausted and debilitated. If the difficulty is a malpresentation it should be corrected, with the fingers if the sow is "roomy" or with wire hooks made from number eight wire. The hooks should be crooked about half an inch and rather blunt on the end. The shank should be plenty long so that the operator can manipulate them handily. These hooks are useful in helping to extract the fœtus, but are not as handy as some of the many styles of pig forceps now on the market. After giving the necessary aid, we should wait and watch results. If our efforts have proven unsuccessful we must then resort to the pig forceps, hooks, etc., and proceed in extracting the fœtus. If it has not already entered the pelvic cavity and the passages are narrow, our efforts may prove unsuccessful. This is very apt to be the case if the fœtus is emphysematous or dead. The after treatment consists in washing out the uterus and vagina with a two per cent. water solution of creolin.

Cæsarian Section. Laparotomy.—When all efforts to remove the young by ordinary means fail, we can then resort to the more heroic measures, that of making an opening into the uterus through the abdominal walls and extracting the fœtus. In valuable breeding sows this operation is of special value but should not be attempted by the stockman. It is useless, however, to operate when the sow is exhausted by two or three days of labor and after the fœtuses have begun to decompose.

Accidents Following Parturition. Eversion of the Uterus and Vagina. —One of the accidents following parturition is the eversion or prolapsus of the vagina and the uterus. Only a portion of the uterus is involved and it is seldom that a complete prolapsus of this organ occurs. This condition may occur before parturition. The chief symptom of this accident is the presence of a tumor protruding from the lips of the vulva and which may hang some distance below that opening.

Treatment.—It consists in cleaning the organ with warm water and antiseptics and returning it to its proper position. If the part is badly swollen, take a strip of muslin about two yards long and two inches wide and begin winding from the outer end and wind toward the body. Allow the bandage to remain on for ten or fifteen minutes. Keep the body end tight and remove the outer part and then rebind in the same manner. This is for the purpose of reducing the organ to its natural size and aid in returning it to its normal position. After removing the bandage apply both thumbs to the center of the mass and return it at once by a slow, steady pressure. The organ can be retained in position by placing a few stout stitches across the lips of the vulva.

Inflammation of the Uterus and Vagina. Causes.—Inflammation of the uterus and vagina may be caused by injuries to the walls of the maternal passages and infection from pathogenic germs or as a result of the retention of dead fœtuses. This latter cause is not at all uncommon.

Symptoms.—These are tumefaction of the vulva, heat and redness of the mucous membrane lining the vagina, fever, straining, loss of appetite and dullness. In serious cases the temperature is high, the respirations quickened and the animal shows evidence of severe pain. The inflammation may extend from the womb to the lining membrane of the abdomen. There may be a foul smelling discharge from the vagina. When the inflammation becomes chronic, as it often does, the appetite improves but the sow becomes very thin and weak, and the disagreeable discharge from the vagina continues. The prognosis is not favorable; the sow usually dies or is in such a condition that it is not profitable to keep her.

Treatment.—Preventive treatment consists in being careful in manipulating the passages when aiding in parturition, and in preventing the infection of the parts by the proper use of antiseptics. The genital canal should be washed out twice daily with a two per cent. solution of creolin. A gallon or more of warm water should be used, and it is best to administer the douch with a fountain syringe. A cathartic can be given if necessary. If depressed, alcoholic stimulants can be given. Quinine and salicylate of soda (twenty grains of each) and gentian (ten grains) should be given every four hours. This should be kept up until the fever has subsided and the appetite has returned. Nothing but slops should be fed. Tonics, good feed, and good care are very necessary in the chronic form of the disease.

Surgical Diseases. Choking. Causes.—Choking may be due to sharp objects when swallowed penetrating the mucous membrane lining the pharynx or œsophagus and attempting to swallow objects (potatoes, roots, etc.) too large to pass down the canal. Paralysis of the œsophagus may sometimes cause it.

Symptoms.—If the choke is complete the hog is unable to swallow food, saliva dribbles from the mouth, tympanitis may develop and if not relieved death will occur from suffocation. The animal may get rid of the choke by vomiting. In partial choke there is difficulty in swallowing and salivation. In thin hogs if the object is lodged in the pharynx it may be felt by pressing the pharynx with the fingers. If the foreign body is lodged in this region, instead of grunting the hog will make a shrill sound.

Treatment.—If the foreign body is lodged in the pharynx it may be pushed forward by pressing below it with the fingers, or a blunt flexible stick may be used in dislodging it. Mucilaginous drenches can be given. We must be careful, however, and not allow the drench to get into the air passages. Unless relieved soon after the accident has occurred it is best to slaughter the animal.

Hernia. Rupture.—Hernia is a condition in which a portion of the intestines or omentum have passed through the walls of the abdomen and lie just beneath the skin. Hernia in pigs is due to congenital defects, as an open umbilicus and a wide inguinal canal, and to increased pressure on the walls of the abdomen by the intestines caused by the pigs piling up and lying on each other and to crawling through a small opening in the pen or fence. Congenital hernia makes its appearance soon after birth.

Umbilical Hernia. Symptoms.—Umbilical hernia is recognized by the presence of a swelling tumor below the navel opening. The swelling is soft and free from inflammation and may be larger at one time than at another. By laying the pig on its back and pressing downwards on the swelling it may disappear. Pigs with umbilical hernia do not thrive as they should and sometimes become "runted."

Treatment.—The treatment of umbilical hernia is not difficult and is followed by good results. The method of operating is as follows: The pig is placed on its back and held there by an assistant. With the point of the finger the size and position of the umbilical opening can be determined. If the intestines do not pass through of their own accord they should be pressed through with the fingers. The hernia sack is then held by the assistant and a strong cord tied around its base close up to the abdominal wall. The ligature should be tied tight enough to cut off circulation in the sack and cause it to slough off. The swelling in the region of the umbilicus is sufficient to close the opening and in a few weeks it will be obliterated. The simple ligature will answer for a small rupture, but if large, a multiple ligature must be used. The seat of the operation is first washed with an antiseptic wash. A slightly curved needle carrying a heavy linen thread that has been lying in an antiseptic solution is then passed through the base of the sack close up to the abdomen, the thread divided and each half tied separately. or one half can be tied and the needle carrying the other half again passed through and tied, and the operation repeated until the necessary stitches have been taken. In case of adhesions between the walls of the sack and its contents, the hernia can not be reduced and it will be necessary to cut into the sack and break down the adhesions with the fingers and close the opening by stitching across from muscle to muscle. Strict antiseptic precautions must be observed in performing this operation. The after treatment consists in keeping the pig by itself for a few days and keeping the part clean.

Scrotal or Inguinal Hernia. Symptoms.—This form of hernia occurs only in the male. The testicles lie toward the bottom of the bunch which may be so large that it drags on the ground. Raising the hindparts of the pig will cause the bunch to become smaller. Strangulation of the intestines seldom occurs. When the hernia is large, the pig does not thrive and will become "runted."

Treatment.—To relieve this condition it is necessary to castrate the animal. The pig should be starved the day before being operated on. The covered operation is the one to be preferred. To remove the pressure from the scrotum, the pig can be hung up by the hind legs or held in this position by an assistant. The scrotum is then washed with an antiseptic wash and an incision made through its walls. The operator must be careful and not cut the tunic (tunica vaginalis) of the testicles. The incision should be large enough to allow the testicle and its coverings to be drawn outside the scrotum and permit the operator to break down with his fingers any adhesions present. A needle carrying a thread is then passed through the tunic and a cord as high up as possible, the thread cut close to the needle and the cord and tunic ligated. The ligature should be drawn moderately tight and the cord and tunic cut off about half an inch above it. The ligature should be of strong material and antiseptic precautions observed in operating. The needle, thread and other instruments when not in use should be dropped into a dish containing an antiseptic wash. The open operation (reducing the hernia, cutting through the coverings of the testicle, removing it and closing the opening with sutures the same as in umbilical hernia) can also be used. It is best to keep the pig by itself for a few days following the operation.

Ventral Hernia.—Scrotal and umbilical hernia are due to dilation of openings already present, all others caused by a tare or break in the abdominal wall, but not in the skin, are known as ventral hernia.

Causes.—Injuries are the cause of this form of hernia. Lying on one another in the pen, as in the case when they pile up, kicks, and collisions with blunt objects are common causes.

Symptoms.—A favorite seat for ventral hernia in hogs is on the inside of the flank, the mass of intestines extending backwards between the hind legs. The size of the swelling varies and presents the same appearance as in other forms of rupture. If caused by a local injury, there is more or less inflammation of the part. This symptom is not noticed in old cases.

Treatment.—This is not as satisfactory as in other forms. After reducing the hernia an incison is made in the sack and the opening in the walls of the abdomen closed by sutures, the same as in umbilical hernia.

Inflammation of the Testicles. Causes.—Inflammation of the testicles in hogs is usually due to external violence, such as blows, kicks, bites from other animals, wounds, etc. It may occur as a complication of some other disease.

Symptoms.—The first symptom noticed is a painful swelling of the testicles which may extend to the surrounding parts. The rapidity with which the swelling develops will depend on the acuteness of the inflammation. Sometimes the animal has a fever and abscesses may form. Hydrocle may occur as a complication of the inflammation.

Treatment.—A cathartic of castor oil may be given. Cold or hot water fomentations may be used to keep down the inflammation. Iodide of potassium can be given in the feed three times daily. If an abscess forms it should be opened and washed out once a day with an antiseptic wash. In some cases it is necessary to castrate the animal. This latter operation must not be postponed too long.

Hydrocle. Hematocele. Causes.—This condition is due to injuries to the testicles and scrotum, the collection of fluid forming as a result of the inflammation of the covering of the testicles (tunica vaginalis).

Symptoms.—Owing to the large quantity of fluid (serum or blood) that may collect between the layers of the tunic, this condition may resemble a scrotal hernia. The swelling is soft, elastic and painless and confined mostly to the lower part of the scrotum. The fluctuation of the fluid can be recognized on manipulating the swelling.

Treatment.—This is usually unnecessary as it does not interfere with the health of the animal or endanger its life. The fluid can be drawn off with an aspirating syringe and the tincture of iodine afterwards injected into the part. This operation must be performed under aseptic conditions and should not be attempted by the stockman. The condition can be removed by castration.

Inflammation of the Prepuce. Causes.—This disease is seen in barrows and is due to the secretion from the lining membrane of the prepuce and dirt accumulating in the prepuce or its side folds. Infection from pus germs may follow and the parts become badly inflamed.

Symptoms.—The prepuce becomes swollen, painful and hot. There is some difficulty in urinating. When pressed on it causes the animal severe pain and a disagreeable smelling material may escape. The contents may be cheesy in character.

Treatment.—Before treating the animal it will be necessary to confine it by placing it on its back and holding it as quiet as possible. The inside of the pouch should be washed with a two per cent. water solution of any of the coal tar preparations. If it is not possible to remove the collection in this way, an incision can be made on both sides of it. All of the material must be removed and the part thoroughly washed.

Castration of Young Pigs.—The age at which castration of young pigs can best be performed is not fully agreed upon. It may be performed when the pig is a few weeks old and still nursing, or after it has been weaned and when several months of age. Young pigs when nursing the mother do not suffer from the shock of the operation as much as at the time of weaning or when older, and the growth is not noticeably checked. Pigs are castrated at all seasons of the year and under all sorts of conditions. As is the case in all animals where the conditions can not be controlled after the operation, the most favorable seasons for operating are the spring and fall. Sucking pigs need not be prepared for the operation. In older ones, it is best to starve them for about twelve hours before castrating them. We should avoid getting the hogs warmed up as will happen if we have to run them about in order to catch them. If shut up in a small pen the assistant can catch the pigs quickly without running them about. One person will be able to confine the pigs for the operation. If the pig is small, the hind legs can be held with the hands and the head and fore legs between the knees; or it can be laid on its side or back and the hind legs drawn well forward. The operation is very simple. The operator should provide himself with plenty of antiseptic solution. The scrotum should be first washed with the antiseptic (a two per cent. solution of some of the creolin preparations) in order to prevent infection. The knife, needle, ligature, etc., should be placed in a similar solution when not in use. The testicle is grasped between the thumb and the fingers and pushed against the walls of the scrotum. An incision is made in the scrotum and tunic of the testicle parallel to the middle line or raphe, and from half an inch to an inch on one side. The incision should be made with one stroke of the knife and large enough to allow the testicle to slip out. In young pigs the cord of the testicle may be broken off and removed at one jerk. In older ones it can be severed by cutting and scraping it with a dull knife. The opposite testicle is then removed in a similar manner. Before liberating the pig the incisions in the scrotum should be examined and if they do not extend to the lowest part of the scrotum, they should be enlarged. This will allow the blood and pus to drain off instead of collecting in the part. The wound requires no after treatment. The pig should not be allowed to wallow in ponds or remain in dirty, dusty or muddy pens. The operation in the boar with the exception of severing the testicle cord is the same. The cord in the old hogs is large and the hemorrhage is dangerous, if cut off with a sharp knife. Scraping the cord in two with a dull knife if properly performed will so crush the blood vessels that little bleeding occurs. Another method sometimes used is ligating it before cutting it off. The best instrument to use, however, is the emasculator. This instrument will so crush the end of the cord that no hemorrhage follows the operation.

Complications Following Castration.—This operation is not free from complications. Observations have proven that they are more common when the work is done carelessly and no attention paid to the antiseptic precautions than if the proper care and antiseptic precautions are observed.

Hernia.—This is a rare complication of castration, but may be caused by jerking the cord too hard when breaking it off, or from an injury when handling the pigs. When operating we should be prepared to treat all cases of hernia, whether present at the time of the operation or resulting from it. The covered operation can be used for scrotal hernia.

Hemorrhage.—Hemorrhage is not a dangerous complication in pigs. In old hogs it will occur if precautions are not taken against it. Excessive bleeding can be stopped by picking up the stump of the cord and ligating it. Packing the scrotum with clean cotton and suturing the incision in its walls may stop it. The cotton should be left in the scrotum for at least a day.

Fibrous Tumors.—The most common complication following castration, is the formation of tumors in the scrotum. These tumors are sometimes enormous in proportion to the size of the pig and grow rapidly. If large the pig does not thrive and becomes stunted. It differs from hernia and hydrocle in that it is very hard.

The cause is infection of the parts with germs either at the time of operating or following it or leaving the stump of the cord too long.

The treatment is to dissect the tumor out. This method of treatment will not be successful unless all the growth is removed. The operation is quite painful and frequently the pig dies as a result of it. If the tumor is small and the operation skillfully performed, the results are usually good.

Castration of Criptorchids or "Originals."—In "original" pigs the testicles fail to make their appearance by descending through the inguinal canal into the scrotum. Usually but one testicle fails to descend into the bag. It may be found in any part of the abdominal cavity, but in most cases is situated in the region of the flank and toward the sublumbar region (below the short ribs).

The animal should be prepared for the operation by starving it for about twelve hours. The operator's hands must be clean and the antiseptic solutions and instruments gotten ready the same as in castrating a straight pig. The pig is laid on its side upon the floor or a board, the hind parts slightly elevated, and held there by an assistant. The operator stands at the back and clips the hair from the flank. An incision is made high up in the flank and midway between the point of the hip and the last rib, and large enough to introduce the fingers or, if necessary, the hand. When the testicle is found it is cut off with the emasculator or the cord ligated and then cut. The incision in the walls of the abdomen is then closed with sutures, placed about an inch apart. The hog should be kept by itself and the stitches removed in eight or ten days.

Spaying.—Spaying is performed for the same reason as castration, and while it was practiced quite generally twenty years ago, it is seldom done now. The necessity for the operation has passed away. It is an operation that is profitable where sows are to be kept until a year or more of age. Under the present method of marketing at eight and nine months it is more profitable to permit the sows to advance to one or two months' pregnancy rather than spay and lose a short time in checked growth, and run the risk of a little loss. When it is decided to spay, the pigs are prepared for the operation as for castration. They should be three months old and weigh from fifty to eighty pounds. The pig is caught and held by two men, upon an inclined board, the head being lowest. The operator stands at the back and clips the hair from the flank over a space about two inches wide and three inches long, and an incision is made about midway between the point of the hip and the last rib and an inch below the points of the lumbar vertebræ. The incision should be just sufficiently large to admit the finger. The fore-finger of the left hand is introduced and follows the back. The ovaries will be found almost directly downward, suspended by a short ligament. They will feel like a raspberry or blackberry and can be mistaken for nothing else. If the ovary can not be found at once, pass the finger backward toward the bladder and search for the uterus (pig bed) and follow it forward to its termination at the ovary. Remove the ovary by tearing it off with the finger or cutting it off with dull scissors. The lower ovary may be removed through the same opening. Close the outside wound with two stitches, using silk thread or silk fishing line. The operation may be performed through the middle line of the belly the same as spaying the bitch. The method is to hang the pig up by a gambrel with a loop for each hook, make the incision about two inches in front of the pubis and remove the ovaries as already indicated. This opening is closed by two sets of stitches, one in the deep muscles and a second in the skin. One of the objections to this method is the danger of small hernias. In either method the parts should be washed with carbolic acid and the hands and instruments should be clean. The loss from operating is slight.

Prolapse of the Anus. Causes.—Permanent protrusion of the mucous membrane lining the rectum through the anal opening is called prolapse of the anus. The cause is violent straining from constipation or diarrhea or anything that will cause a weakening of the sphincter muscle of the anus. It may be seen among breeding sows due to their eating cinders and pieces of wood and the consequent constipated condition of the bowels.

Symptoms.—Sometimes only a few folds of the mucous membrane appear behind the anus, but it may form a fair sized tumor rather hemispherical in shape, red and slightly painful. When exposed to the air for a time it becomes swollen and darker in color. It will become dry in time and crack, sometimes it may slough.

Treatment.—Before replacing it, the mucous membrane should be bathed with warm water for a few minutes in order to reduce the inflammation and clean it. The protruded portion can be replaced by pressing on the prolapsed portion with the finger. If caused by constipation a laxative of castor oil can be given and soft food fed the animal. Sometimes the prolapse will again occur and need to be replaced. If badly swollen it is best to bathe it with an astringent solution (five per cent. alum solution). To retain it, a stitch can be taken across the anal opening. If the protrusion becomes injured or sloughs, it can be cut off and the margin of the bowel sewed to the margin of the anus.

Infectious and Contagious Diseases.—Hog Cholera and Swine Plague. —When and where hog cholera had its origin no one will ever be able to positively determine. It is not an old disease in the sense of having been known and described for a long time, like glanders or anthrax. Neither is it such a new disease as some would have us believe. The oft repeated assertion of old farmers that twenty-five or thirty years ago the disease was unknown is merely evidence that the disease was not so generally distributed throughout the country. According to earlier investigations, outbreaks of disease occurred in Ohio in 1833, again in South Carolina in 1837, in Georgia in 1838, and in Alabama, Florida, Illinois and Indiana in 1840 that are believed to have been cholera. As close observations were not made or records kept upon stock diseases at that time, no doubt many outbreaks escaped unrecorded.

It is not known from whence the disease came; some writers claim that it was introduced into this country by the importation of hogs from

England, while others hold that the germs are native to our soil and only need a favorable opportunity to produce the disease, the same as in black leg.

Hog cholera seems to have been introduced into this State from Ohio by the driving of hogs to the southeastern and southern counties for the purpose of fattening. At first the disease was confined to a narrow tract along the Ohio River, but the disease gradually spread northward and westward until it reached Terre Haute in 1847 and 1848. The first agricultural report, published in 1859 and 1860, contains a most interesting article upon this disease and dwells upon the heavy losses sustained in the southern part of the State. The history of the spread of this disease—following the lines of commerce—is strong evidence that it is not one indigenous to our soil. Every county has now been invaded and some of them very frequently, so that it may be said that we now have a general infection

Losses.—The total loss to the swine industry in the United States has been variously estimated at from $10,000,000 to $25,000,000, but there can be no doubt that in some years the loss greatly exceeds the latter figure. In 1896 it is probable that the loss was between $45,000,000 and $50,000,000. The annual losses vary between $1,250,000 and $5,000,000 in our own State.

According to the Bureau of Statistics the losses in the different years have been as follows:

Year.	Number.
1883	288,286
1884	351,156
1885	326,555
1886	402,164
1887	512,692
1888	326,359
1889	247,114
1890	256,991
1895	278,143
1896	580,267
1897	899,457
1898	372,868
1899	553,930
1901	236,870
1902	197,491
1903	295,672

The average loss for the seventeen years has been having a value of more than $2,000,000. This loss will not be reduced to any appreciable degree in the near future. We know more about the cause of the disease, more about the disease itself, more about its relation to sanitary surroundings, but we do not know more about treatment nor much more about practical preventive measures than was known ten years ago. There is no doubt but that proper sanitary surroundings, pure food and water will do much to avert the losses, but these conditions will not be provided except by the few who appreciate the advantage of preventing loss. Moreover, these diseases can not be wholly prevented by the best hygienic measures that can be provided, which tends to discourage those who do try, and make others more negligent. Knowing about hog cholera is like knowing about the grip—it does not follow that we can control all the conditions that distribute the germs of disease.

Two Diseases.—Hog cholera and swine plague have been made the subjects of special investigation by the United States Bureau of Animal Industry, and the greater part of our knowledge of these diseases comes through this source. There is also much credit due to numerous individuals who have studied these affections. Hog cholera has been known for a long time and is recognized as being identical with the disease called swine fever in England. Swine plague was not recognized until 1890. These two diseases are the cause of practically all of our great losses among swine. In some outbreaks it is easy to distinguish which is present, and in others the two affections may exist in the same herd.

There is a specific germ for each of these diseases. Hog cholera is caused by a germ or bacillus of hog cholera; and swine plague, by the germ or bacillus of swine plague. These germs differ in size, shape, activity, method of growth, resistance to external conditions, and in their effects upon the body. These differences are recognized by those working with the disease, but of course can not be seen without the special equipment found in laboratories. These differences may be briefly stated as follows:

The hog cholera bacillus is a small plant about 1-25,000 to 1-15,000 of an inch long.

The swine plague bacillus is only about one-half of this size.

The hog cholera bacillus is shaped like a short cylinder, rounded at each end, and has a number of delicate projections from the sides and ends like hairs.

The swine plague germ is oval and smooth.

The hog cholera germs have distinct movement.

The swine plague germs have no movement.

The hog cholera germs stain uniformly.

The swine plague germs will stain only at each end.

Hog cholera germs will live in the soil from two to three months.

Swine plague germs will live from four to six days.

Hog cholera germs will live in water from two to four months.

Swine plague germs will live only from ten to fifteen days.

When hogs are fed upon cholera germs they will become diseased.

When hogs are fed upon swine plague germs they do not contract disease.

When hogs are inoculated with cholera germs the disease affects the intestines.

When hogs are inoculated with swine plague germs the lungs are affected.

There are other differences between these germs, but those enumerated should be sufficient to satisfy the general reader. The cause of hog cholera is always the bacillus of hog cholera and of swine plague the bacillus of swine plague, and no case of either of these diseases occurs without the germ being present. Other causes may produce diseases with similar symptoms and may thus be mistaken for these diseases. Other causes may so weaken the system as to make the animal easily susceptible to these diseases, or external conditions may be favorable for the distribution of the germs. These are secondary causes, but are of great importance.

The Effect of the Germs Upon the Body.—In hog cholera the germs of hog cholera are found in the blood and in the internal organs. They grow in bunches and as they are carried along in the blood stream to the small arteries and capillaries they act as small plugs to shut off the circulation in the part supplied by the little vessel. At each place the circulation is thus arrested we have a small red blotch, so frequently seen in the skin, meat, fat and viscera of hogs that die of cholera. These blotches are so characteristic that meat inspectors have no difficulty in detecting cholera carcasses while hanging upon the gambrel. Another characteristic is that these blotches become redder the longer the time after death, while blotches from other causes become paler.

The spleen, or milt, as it is commonly called, becomes enlarged, softened and filled with dark blood.

The intestine is the seat of more or less inflammatory change, particularly in the Pyerian patches and along the lymph tracts. The caecum is especially liable to those changes. In all cases in which the disease continues for some days there is ulceration. The ulcers may be small like a millet seed or as large as a dime. They may be irregular, as in cases which they follow the lymph spaces. The edge of the ulcer projects above the surrounding mucous membrane. The appearance of the surface may be reddish, yellowish or brownish. The edges are not clean cut, but are granular. The ulcer may be only in the mucous coat or in the mucous and muscular, but it is rarely perforating. Hemorrhages sometimes occur as a result of invading an artery or vein. The lymphatic glands along the intestines are always red and swollen and those in other parts enlarged. The contents of the intestine are nearly always black and tarry, and have a very foul odor. In some cases the hog will have eaten clay or other earth, causing very hard, dry faeces. The stomach is not often seriously affected. The lungs are either not affected or only secondarily. They usually collapse at death.

In swine plague the germs are more diffused through the circulation, but may cause the same red patches. The parts attacked are the lungs primarily and other organs as complications. The effect in the lungs is to cause bronchitis and pneumonia. The mucous membrane becomes congested and thickened, blocking certain areas, and sepsis or pus formation occurs, making abscess cavities of greater or less size. These pneumonic areas may be small and numerous or a few and quite large. If the hog should die early in the disease the appearance will be that of pneumonia, but if late these abscesses will have formed and they will contain pus or cheesy material. The other organs are involved secondarily.

It will therefore be seen that hog cholera affects the intestines primarily and that the disease may extend to the lungs, and that swine plague begins with the respiratory organs and progresses toward the intestines. Both diseases may be present in the same subject and the lesions will be confusing. Furthermore, it is to be remembered that the lesions are not always typical and that a diagnosis can not be by the eye alone. This is recognized by the inspectors of the meat inspection service, and now all cases are reported as hog cholera, while formerly they divided them.

The Life of the Germs Outside of the Body.—The general behavior and effects of the germs inside of the body are fairly well known, but the history of the germ outside of the body still remains to be determined. The experiments which have been made with the hog cholera germ have not shown it to be able to live more than a few months in soil or water, and the results of the work with the swine plague germ have indicated that it can only live about half as long. The results of these experiments are at variance with the experience of any one who has had much field work to do. It is not an uncommon occurrence to have an outbreak of hog cholera follow the turning of hogs upon a field where others had sickened, died and been buried a year prior. Such a result often occurs after hogs have rooted out and eaten parts of carcasses that have been buried for a long time. The writer saw a typical outbreak of cholera follow the turning of hogs into an old house where others had sickened and died three years prior. After the first herd had died the doorways were blocked with rails and no stock had access to the place until three years later. The bedding had never been removed, and in two weeks after use by the second herd thirty out of thirty-six hogs were sick, and it was the only outbreak in that vicinity. People have related many cases similar to the above, the period sometimes being longer and at other times being shorter. Again we may note the turning of fresh hogs into a pen where dead hogs may have just been removed and no disease follow. We can not explain all these apparently inconsistent cases upon the evidence from our experimental data.

The germs of some diseases, as glanders, can live for only a short time outside of the body, and hence can only be conveyed by close contact or by animals being placed in the stalls or pens where other cases of the disease have been. Such diseases can be stamped out by slaughter and rigid quarantine. Hog cholera and swine plague do not belong to that class of diseases. In other diseases, of which anthrax is a type, the germs can live and multiply outside of the body for a long time and be able to produce the disease when a favorable opportunity arises. Anthrax has been known to occur as a result of eating the forage from the graves of former victims. There are observations which seem to show that the germs must have lived in the ground for at least seventeen years. The experiments with the hog cholera germs do not show them to possess the same resistive qualities attributed to anthrax, but there are many who do believe that they have a very similar life history in nature. If such be the case, then the problem of how to control the malady becomes all the more difficult.

Similarity to Typhoid in the Human Subject.—Our present knowledge of the germ tends to show that in many respects its life history is like that of the typhoid fever germ. No one would claim that the diseases are identical, or that typhoid is as virulent or contagious as hog cholera, but there are points of resemblance. The lesions in the intestines, lymphatic glands and spleen in the two disease are so much alike that cholera is often called pig typhoid. When blood from a typhoid patient is placed in a culture of typhoid germs it causes them to cling together. When blood from a cholera hog is placed in a culture of cholera germs it causes a similar reaction. Typhoid germs are rarely ever found outside of the body and stools of a sick patient, but it is well established that all epidemics have their origin in the water supply. Epidemics of typhoid fever occur in cities, and no matter what may be the source of the water supply—river, lake or wells—it will be found that it is polluted with the discharges from people. Typhoid fever can always be arrested by securing pure water. The researches of the Indiana Experiment Station have demonstrated that the disease is also water borne. In a series of townships in this State it was found that from 33 to 200 per cent. more hogs were lost along the rivers and streams than at a distance from three to ten miles away from the stream. This could be attributed to the more general use of surface water. No such conclusion must be reached that the disease is only water borne, for we have seen the disease pass up river as well as down and the pigs in a whole section of the country, from one to three miles wide, and from five to seven miles long, become affected simultaneously after a rain.

Less is known concerning the life history of the germs of swine plague than of those of hog cholera. It is known that the disease is more difficult to prevent than cholera; its spread is less liable to be influenced by hygienic measures and it seems to be air borne. Germs very much like the swine plague bacillus have been found in the lungs of other animals. If upon further investigation they should be found to be the same, it will add to our knowledge of the nature of the affection and make us less ready to claim that the disease can be eradicated by sanitary measures.

The Way by Which the Germs Enter the Body.—Experiments have been conducted to determine how the germs find their way into the body to cause disease. Hogs fed upon the carcasses of animals affected with cholera develop a virulent form of the disease in a short time. The intestines become the seat of typical lesions, while other parts are not seriously affected. If the germs be placed upon food or in drinking water they will produce a like result. These experiments show that if the germs be ingested with the food or water they will develop and produce the disease.

The germs have been sprayed in the air and hogs made to inhale them, also injected into the windpipe, but the disease did not develop, which may be taken to indicate that in nature the disease germs do not find a point for development in the lungs, or at any rate not as a primary focus.

The germs have been inoculated beneath the skin, but it is only when very large numbers are used that disease occurs. This would seem to indicate that the hog does not contract the disease from inoculation, as by the bite of the louse and injuries.

A similar line of experiments conducted with swine plague shows that it does not cause trouble when swallowed, but does do so easily when made to inhale air containing the germs or when germs are injected into the windpipe. The lungs are the primary seat of the affection, and thus differs from hog cholera. Inoculation experiments, both subcutaneous and intravenous, require such large numbers of germs that it would seem that natural inoculation by the louse bite could hardly prove fatal.

The conclusions from these experiments are that in nature cholera is caused by the ingestion of the germs with the food or water, and swine plague by inhalation.

Accessory Causes.—We consider all those factors which lower the resistance of the animal or which disseminate or propagate the germs as being accessory causes.

Among the causes which tend to lower the resistance we may consider feeding, shelter and breeding. The disease is often attributed to the feeding of green corn, too much corn, etc. In 1896 the Iowa Weather Bureau published a map showing the distribution of the disease in the State. It was found that the greatest losses were sustained in those counties where corn constituted an almost exclusive diet. The lowest death rate was sustained in those counties in which dairying was an important industry and milk was largely used as a feed. This was taken as confirmatory evidence of the bad influence of a corn diet. In 1897 the statistics showed that the losses were just the reverse from those in 1896, that the pigs fed upon corn suffered least. This disproved the conclusion of the previous year. As farmers feed in essentially the same way each year, it would be but rational to expect that the losses would be about the same if the feed was a causative factor. Neither is the sudden changing of feed a causative factor, as we have not yet had a single report of an outbreak of cholera at any experiment station as a result of a sudden and radical change of feed. The feeding of green corn or all corn can not be considered a wise health measure. When green corn is fed it should be with the same precautions as in the feeding of cattle—beginning gradually with old corn and increasing the quantity as the pig is able to stand it. This will avoid the diarrhoea and intestinal irritation which prepares the way for the cholera germ. Any injudicious management in any kind of feeding will have the same effect. The hog needs a variety of food for strength and health, and those best prepared to furnish it will probably fare best.

The hog needs shelter; it need not be elaborate, something to break the scorching sun or beating storm, to have dry quarters in which to sleep and a clean floor from which to eat. The strawstack is the poorest shelter that can be provided, as it furnishes a place in which to pile up and be buried, overheated when lying down and makes a fit victim for cold. The hog does not need much bedding. A tight wooden floor upon which to feed is rapidly growing in favor from economical considerations, and will become equally popular from the health standpoint when its value becomes better understood.

The breed of the hog makes no difference to the cholera germ. The objection made by the farmer that pure-bred hogs are less resistive to disease is not well founded in fact. The razor-back, with digestive powers equal to any task that may be imposed upon them will succumb to the diseases the same as the finely bred Berkshire or Poland-China. No breed of hogs is immune to the disease, and the advice to cross our better bred swine with the southern hog is ill founded. All the advantage which they possess is in the fact that they are not so fat and all the vigor that will prevail against the disease can be obtained by using care in the handling of the improved breeds.

Among the agencies which may carry the germs are streams, wind, birds, dogs, people passing from one farm to another, buying hogs from infected herds, shipping hogs in unclean cars, exhibiting at fairs, etc. Some of these means are not within our control, but many of them are, and a proper understanding of them should lead us to prevent thousands of cases.

Undoubtedly a very important agency in the distribution of the disease are the streams and the surface water supplies. The relationship of the water supply to the disease was made the object of investigation for a number of years. In 1895 the 60 townships bordering upon the Wabash, from Cass County to its mouth, show a loss of 150 head out of every 1,000 produced; 47 townships in the second tier removed from the river show a loss of 100 head per 1,000 or 50 per cent. more loss in the first tier than in the second tier. In 1896 the bordering townships lost 294 hogs per 1,000, the second tier 205 and the third tier 160. In other words the loss was 43.4 per cent. more in the first tier than in the second tier. and 83.8 per cent. more than in the third tier.

In 1895, 44 townships bordering upon the north fork of the White River lost 138 hogs per 1,000, and 42 townships in the second tier 65 hogs per 1,000, or 112 per cent. greater loss in the townships bordering upon the river than in those a few miles removed. In 1896, the loss in the first tier was 231 per 1,000, in the second tier 156, and in the third tier 75, or 48 per cent. greater loss in the first than in the second, and 208 per cent. greater than in the third. In 1896, 44 townships bordering upon the south fork of the White River lost 200 hogs per 1,000; 58 townships in the second tier lost 150, and 42 townships in the third tier lost 109; thus making 33 per cent. more loss in the first than in the second, and 83 per cent. more loss than in the third. In 1897, the first tier of townships bordering upon the river lost 321 hogs per 1,000, the second tier 182, and the third 145; 76 per cent. greater loss in the first than in the second, and 121 per cent. more than in the third.

In every general epidemic of the disease of which I have record in this State the disease has been spread from the rivers to the higher land. The evidence furnished by the large number of townships and for successive years should leave no doubt as to the important role which streams and surface water play in the spreading of this disease. If the larger streams are such important factors we can reason that the smaller streams have a like effect. Drs. Salmon and Smith made the following statement in their investigations of this disease. It is pertinent and should be remembered by all swine breeders: "Perhaps the most potent agents in the distribution of hog cholera are streams. They may become infected with the specific germ when sick animals are permitted to go into them, or when dead animals or any part of them are thrown into the water. They may even multiply when the water is contaminated with fecal discharges or other organic matter. Experiments in the laboratory have demonstrated that the hog cholera bacilli may remain alive in water four months. Making all due allowance for external influences and competition with the bacteria in natural water, we are, forced to assume that they may live at least a month in streams. This would be long enough to infect every herd along its course.

It is a common practice throughout this State to give the hogs surface water in which to wallow and to drink. Small streams are dammed, drinking places are built into the rivers, a basin is scooped out to receive the water from a barnyard, open ditch, tile drain or spring. All of these afford the best conditions for introducing the germs into the herd. It is not uncommon to go along a public ditch or a stream during an epidemic and find the carcasses of hogs in every stage of decomposition, thus acting as a bearer of infection to new herds. The conditions are better now than ever before, but there are unscrupulous men who will take that means of disposing of their dead, and some one else must suffer.

Some springs afford pure water but many have only a surface origin and are no better than a tile drain. The worst feature connected with the use of a spring as a water supply is the fact that no provision is made for keeping the water clean and pure. The water usually collects in a pool and receives the surface drainage from all the land around and serves as a wallow. Under such circumstances it becomes little better than a pond.

In 1895 the experiment station made an inquiry as to the source of the water supply used by the breeders of pure-bred swine. It was found that in nearly all instances in which they escaped disease they used well water. Hogs receiving well water do become affected, but when we consider the numerous ways by which the infection can be carried we are not at all surprised. A good well, however, must always be considered as furnishing the maximum protection.

A study was also made of the relation of rainfall to the disease. No relationship could be traced to the total rainfall for the year or to the total rainfall for any set of months. In general, a season with sufficient rainfall to keep a constant supply of fresh water in the streams or one of sufficient drought so that the small streams, ponds, etc., become completely dry, are productive of least cholera. A year in which there is much stagnant water is productive of the greatest death rate.

The argument is advanced that the greater loss occurs along the rivers because more corn is raised, more hogs are fattened, and hence they are more crowded. In order to determine this point we divided the counties in the State into groups according to the number of hogs raised per square mile and determined the per cent. of loss for these groups. This is presented in the following tables:

1883-1890.

Number of Hogs Per Square Mile.	Number of Counties.	Per Cent. of Loss.
1- 24	1	8.1
25- 49	7	4.5
50- 74	20	5.9
75- 99	12	9.1
100-124	16	8.3
125-149	11	7.9

150-174	7	8.1
175-199	10	8.8
200-224	8	10.

1895-1897.

1- 24	2	7.7
25- 49	22	9.1
50- 74	18	11.1
75- 99	16	17.9
100-124	12	19.2
125-149	8	17.3
150-174	7	21.6
175-199	4	22.2
200-224	3	26.

During a period of eight years there is comparatively little difference in the losses, but during the period of three years when the disease raged with unusual violence the percentage was much higher in the counties having a large number of hogs per square mile. It is not possible to tell how much of this increase in loss is due to the greater number of hogs, as it so happens that the counties having a very large number of hogs per square mile and large percentage of loss also have one or more rivers passing through them. From a comparison of counties about equally situated but the number of hogs per square mile very different, I am of the opinion that the number raised is not a very important factor in determining the per cent. of loss.

The season of the year when cholera is most prevalent is always in the late summer and fall. It occurs at all times of the year, but like all intestinal diseases, as dysentery, typhoid fever, etc., in people, the conditions for germ development are more favorable in the fall.

The germs of the disease may be carried from one place to another by birds of carrion. It is a common experience with farmers that hogs can not be raised upon a farm where there is a buzzards' roost. I have learned of isolated outbreaks of the disease occurring from buzzards alighting to eat the carcass of a colt or other animal and soon after the hogs gain access to the same place and contract the disease.

Dogs prowling about at night carry pieces of dead animals for a mile or more, across pasture fields, feed lots, leaving pieces here and there to be devoured by some unfortunate animal.

Men may carry the disease from place to place upon their boots, or particles of dirt remain upon the wagon wheel and when they dry drop off in another lot. It should be a general rule never to allow agents for hog cholera cures to come near a pig lot when they are healthy hogs. They go about diseased hogs and do not use the precautions necessary to prevent the spread of infection.

Under some circumstances I believe the wind may be the bearer of germs. If the germs be distributed along a public highway by the rendering wagon and become mixed with the dust it is possible and altogether probable that they may be blown on the pasture or on the feed lot and thus convey disease. I have seen a few outbreaks continue in one direction for several days after a constant prevailing wind from the southwest. The evidence in this case seemed to point to the wind as the distributing agent. In such cases the germs fall in the water or are taken in with the food.

Hog cholera is often contracted as a result of buying hogs from stockyards for feeding purposes. This is such a common experience that only the strong-headed or uninitiated will be likely to take the risk. The large stockyards and the majority of shipping cars are permanently infected with disease, and no matter how healthy the hogs may have been when they started from home they come in contact with infection and should never be withdrawn from the yards for feeding purposes. We have recorded many outbreaks in this way. It has been claimed that the shipping of diseased hogs over the railroad may be the means of causing new outbreaks of disease. I made this a particular object of research in 1895 and 1896, but in no case have I been able to find more cholera along railroad lines than at a distance of a mile or two upon either side. Under the present method of having the right of way fenced, I feel certain that the infection from this source is overrated.

It would be useless to try to go into detail concerning all the methods by which the disease is distributed. Any means by which the germs are carried from one place to another can be considered an accessory cause. All of these means are not under our control, but many are, and we will succeed in prevention in the same measure as we eliminate them.

Symptoms.—The diagnosis of the different swine diseases is attended with greater difficulties than the diagnosing of diseases in horses and cattle. Except upon very careful examination the general symptoms of swine diseases seem to be very much the same. Cholera assumes several different forms and therefore can not be recognized by any specific set of symptoms.

The symptoms vary greatly with the virulence of the outbreak. It may be said to assume an acute form which may run a course in from a few hours to two or five days, a subacute form which runs its course in from five to ten days, and a chronic form which may last a month or more. These are only relative terms and merely used for convenience in describing the disease. The symptoms as here described are for the more common cases that live from five to ten days. About the first symptom to be observed is a general sluggish condition, the eyes more or less closed and dimmed, the ears drop more than usual, and although the hog eats, it is not with the greediness that is customary. The appetite becomes depraved, and he will eat the droppings from other hogs or chickens, eat clay and earthy substances. The hog lies about more than usual, hiding in fence corners, under litter, and in out of the way places. If he should have access to a manure pile, that will be a favorite place. During the hottest days he will prefer to lie in the scorching sun rather than in the shade. At first he will respond to calling for feed, but later he will not get up unless urged to do so. During the progress of the disease and sometimes from the very beginning there will be pronounced rheumatic symptoms. The hog will be lame first in one leg then in another. The back will be arched. Diarrhea usually makes its appearance with the onset and is almost always present at some time during the course. The discharges at first are thinner than normal, but they rapidly become tarry and have a characteristic offensive odor. Constipation may occur and is almost sure to do so in those animals that eat earth. In some of the animals the intestinal contents make casts that perfectly occlude the passage and when struck with a board give the sensation of baked clay. Vomiting is also present. There is rapid emaciation. The fever is high and the breathing rapid but not labored.

In the very acute cases, the toxins cause such rapid poisoning of the system that death is so sudden that the symptoms may not be developed. A pig that may be eating at the trough at one hour may be dead the next.

In the chronic type especially there is likely to be swelling of the ears and cracking of the tail. Both may drop off. The eruption is more pronounced upon the skin. Ulcers may form from the size of a grain of wheat to the size of the hand. The hair is lost. There is frequently hemorrhage from the nose and sometimes sore mouth and feet. There is coughing as a result of lung involvement.

In hog cholera the great fatality is among the pigs, the older hogs often making a recovery or not being attacked.

In swine plague a cough is probably the first symptom observed. It is paroxysmal at first, but is deep seated. This is more noticeable when the animal first gets up or after exercise. Later the cough is more persistent. The breathing is short and rapid, with little movement to the ribs and a double jerk in the flanks like a horse with heaves. The breathing becomes more labored, the throat swells and there is nose bleed. If the hands are pressed over the ribs there will be evidence of pain, often due to pleurisy. The animal will not move more than necessary, the appetite remains better than in cholera, there is much thirst and much less tendency to diarrhea. Constipation is more frequently present than in cholera. The eyes are more inflamed and watery, and there is less tendency to skin eruption. Swine plague is particularly liable to attack and be fatal to old hogs. Both diseases may be present in the same herd and even in the same animal at one time, thus complicating the symptoms. In nearly all cases where there is doubt and a number of hogs are similarly affected in the same neighborhood it is safe to conclude that one or both of these diseases are present. We have no other widespread diseases of hogs causing such loss.

Hog cholera is sometimes mistaken for other diseases, as worms, diarrhea or scours, septicemia or blood poisoning, etc. Swine plague is frequently mistaken for pneumonia, pleurisy and bronchitis.

In some places the intestinal worms become so numerous as to cause all the intestinal symptoms ascribed to cholera, vomiting, diarrhea, depraved appetite and emaciation. The onset of the trouble is not so sudden; there is not the same temperature, usually no lameness, and no skin eruption. The worms causing the trouble may be the large intestinal worms, the size of a lead pencil or larger, or the small fellows from one-half to three inches in length. A post-mortem will show the presence of the parasites in great numbers and the intestines will be more or less irritated. The presence of the parasites causes so much loss that some of the cholera cures are nothing but vermifuge powders. The lung worm may also produce symptoms that will be mistaken for swine plague.

Diarrhea, or scours, may also be mistaken for cholera, as it is often induced by a change of feed, as turning upon new corn, feeding city slops that contain soap and sour feed. The discharges are usually more fluid and of a lighter color than in cholera. The disease can not be distinguished in the early stages, but a change to a limited dry diet will usually be all that is necessary to bring about the desired result in the diarrheal trouble.

A form of septicemia, or blood poisoning, sometimes attacks a bunch of pigs, and, being contagious, spreads from one to another. The mouth, nose, lips, tongue, feet or other parts of the body become gangrenous. While the disease presents some of the symptoms of cholera, the localization of the trouble is sufficient to make a diagnosis.

Hogs will pile up in bunches when not properly divided and protected during the cold weather, and as a result catch more or less severe colds, resulting in bronchitis, pneumonia and pleurisy, giving rise to symptoms like those of swine plague. The same troubles may also appear as a result of turning hogs upon a stubble or pasture field during very hot weather and then permitting them to have access to cold springs or brooks in which to wallow. These same troubles sometimes arise from the inhalation of dust. A study of the conditions will usually suffice to differentiate the troubles.

Number of Animals Affected, and Immunity.—When an outbreak of cholera occurs in a neighborhood we can not judge what per cent. of the hogs will be affected and die. Some outbreaks have a virulent type of the disease on the outset and gradually the virulence diminishes so that while from eighty to one hundred per cent. of the hogs affected at the outset may have died, only ten per cent. may be affected and die out of herds attacked later. As a rule the disease is more virulent in type when it makes its first appearance. The reverse of this is true in some instances. Out of a large herd of mixed hogs it is always safe to predict that the younger ones will die and that from ten to thirty per cent. of the older ones will escape. Here is where hundreds of farmers are duped into believing that certain hog cholera cures accomplished great good, as they lose the susceptible ones before a remedy is tried and then succeed in saving those that would have lived anyhow.

One attack usually confers immunity against subsequent attacks, but there are exceptions. An animal then that passes through the disease becomes valuable as a breeder. Often sows lose the litter of pigs which they may be carrying at the time, but it has no influence upon subsequent litters. No immunity is conferred upon the offspring, as they are as susceptible as any to the disease.

Treatment.—The treatment naturally divides itself into medicinal, hygenic and preventive. The medicinal is the least important, as we have no specific for the disease. Veterinarians who have made a careful study of the action of drugs and of the character of the disease have tried everything that would seem to be a rational treatment, but have failed. Pathologists have recognized the apparently hopeless condition to be treated and have been unable to suggest a remedy. Experimenters have tried everything which science and empiricism has claimed would cure, but they have found nothing which they could indorse. Notwithstanding all the futile efforts that have been made by careful and conscientious workers, backed by large sums of money and every facility for investigation, we have more than one hundred sure-cure cholera remedies upon the market in this State. According to the manufacturer (and the claims are all alike), the prevention and cure of hog cholera is a very simple thing, and depends wholly upon whether the farmer is willing to buy a few packages of their remedy and use as directed. It is impossible to make a close estimate of the amount paid for such preparations, but it is safe to say that in this State it amounts to more than $100,000 annually.

In 1897 and 1898 the writer devoted considerable time to the investigation of the merits of the various preparations upon the market. Many of these preparations are the product of misguided men, wholly ignorant of the pathology of the disease and equally as ignorant of the action of the ingredients in their concoctions. From a very limited trial they had drawn conclusions and sincerely believed they had discovered a sure cure, and were willing to part with it for a large compensation.

A much larger number of the remedies are prepared by men and companies who know the value of a well-worded advertisement and who are in the business for revenue only. They take the government formula, alter it in some slight particulars, call it by another name and increase the price probably ten times. Another favorite scheme is to take the formulae of some of the patented preparations and sell the remedy under a new name, well knowing that if it failed under one name that it would act no better under a new. I was informed that Brown County clay sold for seventy cents per pound.

A third class of remedies is prepared by men who make a study of the disease. They constitute a very small minority.

There is no better evidence that we have no sure remedy than the fact that we have so many on the market. In these experiments one hundred and fifty-six remedies were tried and nearly 4,200 pounds of drugs. All the formulae given in the patent office reports were filled. A large number of formulae were obtained from the owners and manufacturers, a few by analysis, and several hundred pounds of the proprietary remedies were used.

The plan was to test each remedy upon at least five herds in as many places and at different times during the season, in order to work over all the conditions. Without going into details, it may be said that none of them fulfilled their claims. Some were positively injurious. Many of them seemingly did good upon some herds, and if a hurried conclusion had been reached it would have been favorable. This is an error too often made, and no test can be considered satisfactory that it not used upon a large number of hogs in different herds, in different localities and at different times during the season. The good effects often reported are frequently due to the better care and the better hygienic conditions in following the directions. Some manufacturers accompany their goods with carefully compiled directions upon care and management, and as they cost considerable it insures their being carried out. It must be confessed, however, that directions come high at fifty cents per pound.

Very few remedies find a place upon the market for more than five years. The great majority of them run their course in two years, and the writer is cognizant of but three that have been sold for a period of more than ten years. This is the test of their efficiency. In every instance in which an attempt has been made to take infected hogs from the stockyards, treat them and fatten them for the market the result has been a failure.

In 1897 Mr. John Cowie, of Iowa, tested a number of the more widely advertised remedies and the results were unfavorable. Dr. Reynolds, State Veterinarian for Minnesota, after examining the matter carefully, issued a circular advising the farmers not to purchase the remedies.

In mild outbreaks and in very many cases much good can be accomplished by such remedies as will keep the bowels clear and act as an alterative and tonic. For this purpose we have a prescription generally known as the government formula, and is as follows:-

Wood charcoal	1 pound.
Sulphur	2 pounds.
Sodium chloride (salt)	2 pounds.

Sodium bicarbonate (baking soda)	2 pounds.
Sodium hyposulphite	2 pounds.
Sodium sulphate (Glauber salts)	1 pound.
Antimony sulphide	1 pound.

The dose is a tablespoonful for each 200 pounds once or twice a day. It is best given in slop. This costs about ten cents per pound, and is the one so much imitated and sold under different names at from twenty to twenty-five cents per pound.

Our best results in the treatment of mild cases were obtained by using the following:

Chlorate of potash	1 pound.
Bicarbonate of soda	1 pound.
Nitrate of potash	2 pounds.

The dose is the same as in the former prescription. In the early stages and when constipation is present five grains of calomel are administered once a day to each 200 pounds of weight, or oil meal is added to the slop.

Another treatment which found considerable favor was a tablespoonful of a saturated solution of chlorate of potash and a like quantity of tincture of muriate of iron once or twice a day for each three hundred pounds.

A half gallon of kerosene to a barrel of slop, mixed thoroughly, gave better results than three-fourths of the remedies tried.

Quinine and salol were also of service.

Carbolic acid and like preparations are disinfectants and not cures.

The treatment of inoculating worn-out horses with cholera germs, killing the horse and feeding it to the hogs was not a success. The feeding of the carcasses of hogs that had died of the disease and been buried is to be condemned. The boiling of the carcasses of cholera hogs and feeding them has likewise disappointed those who have tried it. A final method of prying open the hog's mouth and cutting of the papillae inside of the jaw only abstracts blood.

Prevention by Vaccination.—The attempt to prevent hog cholera by vaccination is dependent upon the fact that one attack confers immunity against subsequent attacks. Vaccination has been used against smallpox in the human subject with the most marked success. In this case the pox germ is obtained from the cow, and when vaccination takes place it induces a mild disease. Vaccination is also used against anthrax in sheep and cattle. Here the disease germs have their vitality reduced by artificial means and only a mild attack follows. The results are highly satisfactory, and sheep and cattle are now raised where it was impossible to do so before.

The attempts to vaccinate against cholera have not been successful. In the first place, we know of no animal having a similar disease, the germs of which when inoculated into the hog will confer immunity, and no method of attenuating the germs so that they can be inoculated with safety has yet been discovered. Some years ago Billings and Detmers each thought they had discovered successful means of vaccination and the work was carried on on a large scale. The results were unsatisfactory, and had to be given up, as it had the effect at times of starting the disease where it did not previously exist. The work is being revived at the Kansas Experiment Station and again being reported favorably. The matter needs to be more fully demonstrated before advising the stockman to try it.

The Anti-Hog Cholera Serum.—The serum treatment of hog cholera was probably first demonstrated by Dr. Peters in 1896, and the same work undertaken at almost the same time by the Bureau of Animal Industry. The serum treatment is based upon the same principles as are involved in the anti-toxin for diphtheria.

It is a well established fact that in some bacterial diseases a strong resistance to the growth of bacteria is developed by the formation in the blood of a substance known as anti-toxin. The germs form a toxin or poison, and the body forms the anti-toxin to counteract the growth of the germs. If the formation of the anti-toxin is in excess the patient recovers, and it has been found that blood from such a patient can be drawn, the anti-toxin separated, and if added to the blood of a patient that is exposed or affected it will prevent the disease or bring about a recovery. In order to secure anti-toxin in medicinal quantities it is usual to inoculate animals that do not have the particular disease and produce a slight attack, and after recovery reinoculate and repeat until the animal can stand an enormous quantity at one time. A quantity of blood is drawn and the serum separated and this is ready for use.

The government has experimented upon a large scale with this treatment, and in the main the reports have been very favorable. A number of private firms have attempted the same thing, but up to the present time they have not been very successful. This treatment does not promise nearly so much, in the estimation of the writer, as the public has been led to suppose. The serum can not be produced at low cost, and its administration requires the services of a veterinarian, two conditions which militate against its general usage.

Prevention.—As we have no specific for the disease nor any line of medication that is fairly successful, we must rely upon prevention. This can not be done to the same extent as in many other diseases, and this is especially true of swine plague. To enumerate all of the steps would necessitate repetition of points already made, so that only the more prominent will be considered.

First, the water supply should be from deep, tubular wells. Water from a tubular well must come in from the bottom, which means that it has been filtered through the soil and the possibilities of pathogenic organisms being present is reduced to the minimum. Treat all surface water, whether pond, creek, spring or river, as unfit for man or beast. The feed should be pure and wholesome. Slops that have stood and fermented are no better suited to the stomach of the hog than that of some other animal. The dishwater contains so little nutrition that it would be more economical to throw it away than to feed it. Corn is undoubtedly our cheapest fattening food, but should not be given alone to sows and pigs. The addition of a little oil meal or other material rich in proportion will be most advantageous. Pasture should be used in season. Hogs are fond of charcoal, salt and ashes, and these seem to furnish something to the body that is decidedly beneficial. The cobs from the feed floor should be raked into a shallow pit and burned to a char and salt added at least once a week. Nearly all prominent breeders follow the practice of supplying charcoal, salt and ashes in some form, and many attribute to it the power of preventing disease. A feeding floor should be provided. The bedding for hogs should be like that for other stock—a little at a time and removed often. There is no better reason for compelling a fine sow to lie in her own filth than there would be in the case of a good horse. The bedding of both will become foul and should be removed. It can not be kept pure by disinfectants. Hogs should have no bedding during the warm season, only a dry place in which to sleep.

In case of an outbreak of disease upon the premises, separate the well hogs from the sick and confine all in small lots upon one part of the farm. Separate the well hogs from the sick, as the contagion is spread by the droppings and excreta, and the well hogs would be subject to the contagion if kept upon the ground where the sick had been. Formerly the recommendation was made to give the hogs the benefit of a large pasture and keep constantly dividing the herd. Experience has shown that this has the disadvantage of getting the germs scattered all over the farm, prolonging the outbreak, and has no advantage over placing them in two or three small lots. By the latter method the business of hog raising can again be started as soon as the outbreak is over, using some other part of the farm. Use plenty of disinfectants about the place. Air-slaked lime, whitewash, chloride of lime, carbolic acid, etc., are all good. If possible have one man to feed the diseased and another to feed the well hogs. Take advantage of all the sunlight that it is possible to get, as that is the cheapest disinfector.

No rule can be laid down for guidance as to the time when pens, etc., may be used after an outbreak of disease. We have observed instances in which this was done immediately and disease did not follow, and in other cases weeks and months have elapsed and a fresh outbreak would be started. If the place is thoroughly cleaned and disinfected and is well lighted a few weeks will be sufficient, but when it is feasible it is better not to attempt it again during the same season. Experience has shown that a wise precaution is not to permit the hogs to graze or be in pens alongside a public highway. Hogs having the disease and driven to market will leave droppings that become mixed with dust and blown upon the premises. It is the observation of the writer that this is a precaution not sufficiently emphasized.

Hogs may be disposed of in two ways, by burial and burning. If by burial it should be well done, upon a dry place at least three feet deep and in a woods or field to which the hogs will not have access for a long time. If it be true that the disease germs live for a long time in the soil, then burial only favors the development of some subsequent and unexplained outbreak. Where burial is practical the addition of a quantity of quicklime will be effectual in destroying the germs.

Burning is not difficult when properly done. The essential point is to get at least a foot of wood under the carcass. A very much smaller amount of wood will be required where the fire is under rather than at the side. All carcasses should be disposed of at once, and it is far more economical to kill badly infected hogs than to have them linger around for a week or two.

State Control.—The argument is often made that the State should exercise some control over hog cholera and swine plague. The precedent is cited that the government stamped out pleuro-pneumonia in cattle and has saved millions of dollars to the cattle interests. The different States take cognizance of glanders and practically have that malady under control. Southern cattle fever is now confined to restricted areas, and sheep are being dipped for scab. The diseases which have been stamped out or brought under control have been of such character as to require close contact to spread them. Hog cholera is a disease of different character and therefore is not amenable to the same methods. Typhoid fever in people sometimes assumes an epidemic character in cities, but by condemning wells and compelling the use of wholesome water the disease can be stamped out. Hog cholera is a water-borne disease, and can be prevented in part by securing pure water, but there are other means of spreading the infection. We have little to guide us in what may be accomplished by State control. England has tried to stamp out the disease by preventing the shipment of pigs unless inspected, no hogs to be shipped from a swine fever district, and none to be moved within sixty days from the time of an outbreak. In the shipment of pigs all cars must be disinfected and it becomes the duty of the owner to report every case of the disease as soon as it appears and the animal is slaughtered.

Prior to 1896, the regulations were not so rigid and the effect of the attempt at control may be seen from the following table:

Year.	Outbreaks.	Hogs Slaughtered.
1894	5,682	56,296
1895	6,305	69.931
1896	5,166	79.286
1897	2,155	40,764
1898	2.514	43.756
1899	2.243	30,386

The effect has been to greatly reduce the number of outbreaks and also the number of animals slaughtered. For a time the reduction in the number of outbreaks and also of pigs slaughtered was so marked that much hope was entertained that it might be possible to completely control the disease. The very serious restriction to trade and the heavy expense has brought many protests from the producers and the restrictions are again becoming less rigid. It will take more time before a conclusion may be drawn as to the possibilities of this method.

In 1897 the government undertook an experiment in Page County, Iowa, to determine what might be accomplished by county police measures. The plan was to canvass a part of the county and determine the number of pigs raised the year before, the number that died and the number now on hand. Upon receipt of notice of an outbreak the veterinarian called and killed all the sick and paid the owner at market rates. Disinfection and general cleaning of the premises followed. It is believed by some that the saving more than paid the expenses.

Several of the States have laws upon hog cholera, but they usually define the manner in which the carcass shall be disposed of. Minnesota probably undertakes more than any other State, and there the matter is in the hands of the State Board of Health. Canada demands a certificate of a clean bill of health from the State Veterinarian before they can be shipped in. The tendency is toward making transportation companies disinfect cars, yards, etc.

In our own State the law requires burning or burial of the carcass; it requires a certificate of health to exhibit at the fairs and the disinfection of pens, etc., at fairs. It is an imperfect law, but has been the means of saving many thousands of dollars.

The problem of State control is of great importance and will not be settled soon. In the meantime this State should not be content to sacrifice $2,000,000 worth of stock annually without making some effort to determine new facts concerning this disease.

Tuberculosis of Hogs.—The abattoir statistics published by the bureau of animal industry show this to be a fairly common disease of swine. Tuberculosis has been increasing among hogs during recent years, but is not nearly as prevalent here as it is in European countries. There the disease is more prevalent among cattle, and statistics abroad show that the percentage of tubercular hogs increase as the affection becomes more common in cattle. The disease is more often seen in young than in old hogs and is generally acute and generalized.

Causes.—The specific cause of tuberculosis is the bacillus tuberculosis, which was discovered by Koch in 1882 and can be found in the nodules and tubercules in the tissues of diseased hogs. These bacteria usually occur in the form of slender rods averaging from 2u. to 5u. in length, and have rounded ends. These may be seen singly, in pairs and in small bundles, and do not form spors but vacuoles. There is probably no disease-producing germ which undergoes greater modifications under various conditions of environment than this.

Pigs generally contract the disease by eating infected food; skim milk, butter-milk and slops from the dairy. Young pigs may become diseased from sucking a tuberculous mother. The eating of the tubercular carcasses may also cause it. Infection may take place through the inspired air, and when tubercular hogs are introduced into a herd all the hogs in the pen may contract the disease.

Predisposing conditions are very important factors, and such conditions as act unfavorably on the constitution of the pig, will, if the germs are present, favor the development of the disease. Close pens, filth, unnatural bringing up, early forcings, etc., all favor its development. Improved breeds of swine are said to be more predisposed to the disease than the common breeds. Infection has been known to occur by way of wounds, especially castration.

Symptoms.—These will vary according to the organ affected. In pigs the disease is often acute and generalized. Generally the symptoms are not well manifested or the infection may be slight and the disease not recognized by the owner, unless a post mortem examination is made on some of the dead animals. In young pigs that have become infected by sucking a diseased mother, symptoms of intestinal tuberculosis may be manifested. The pig becomes runted, pot-bellied and emaciated. The visible mucous membranes are pale and the skin presents an unthrifty appearance, and may become covered with crusts. Digestive disorders occur, such as diarrhea, bloating and vomiting. Manipulating the abdomen may cause the animal pain, and sometimes a hard, knotty mass, representing a bunch of tubercles, is felt. The pig is feverish at times.

If the lungs are involved there is a cough. This becomes more annoying as the disease progresses, sometimes the pig almost chokes. The breathing is quickened and labored. Frequently the superficial lymph glands in the region of the pharynx are affected.

In tuberculosis of the brain, nervous disturbances are noted, such as turning round and round, convulsions, spasms of muscles and paralysis. Only part of the body or certain groups of muscles are involved. The head may be held obliquely, the snout drawn to one side and the ear droop.

The course of generalized tuberculosis is short in young pigs, but may last for months in older ones. When localized, it is recognized only after the animal is slaughtered.

Lesions.—The changes in the tissues following the invasion of the bacillus tuberculosis are the formation of nodules or tubercules, gray or yellowish white in color or translucent in character. In some cases these nodules are distinct and easily recognized, but in advanced cases they often come together and form a mass of tubercular tissue.

In the beginning the tubercle consists of a few cells surrounding the invading germs. These are soon enclosed in a zone of epitheloid cells and giant cells, which in turn become surrounded by a layer of lymphoid cells. The central portion of the tubercle soon dies and breaks down, and as the nodule enlarges, the necrotic portion gradually increases. When cut into these nodules or masses of tissue are usually made up largely of yellow caseous material. Sometimes it is indurated and almost as hard as cartilage. Calcareous degeneration of nodules is not often seen in hogs.

As the disease is nearly always contracted by the ingestion of infected food the digestive apparatus and lymphatic glands are usually involved. Localized lesions in the lymphatic glands (pharyngeal and submaxillary) are very common. They become enlarged, knotty and hard. When cut into they are made up mostly of old fibrous tissues with yellow caseous centers scattered through it. Ulcers and miliary nodules may be seen in the intestines; yellow miliary granules may be scattered throughout the liver tissue, or tough nodules, yellowish white in color and varying in size from that of a pea to a hazel nut, may be seen; the peritoneum is sometimes the seat of fine granulations; and lesions the same as exist in the liver may be seen in other internal organs (spleen, lungs, etc.). When the disease is generalized, the muscles are sometimes affected.

Treatment.—We must take all the precautions possible against infecting the herd by avoiding the feeding of infected food and by keeping the hog houses and pens in the best hygienic condition possible. Hogs should not be fed skim milk and slops from a dairy known to have tuberculosis, and it is a very bad practice to feed hogs the carcasses of other animals. When a hog has tuberculosis it should be destroyed and the body disposed of in a suitable manner.

Infectious Catarrhal Pneumonia of the Pig.—There is a form of catarrhal pneumonia of pigs that is without doubt of infectious character. The infectious nature is established from the clinical history rather than from the finding of a specific organism. It affects pigs under four months of age principally, and is not attended with a very high death rate in those over two months of age.

When the disease is introduced into a piggery, it is almost certain to attack all susceptible animals. The period of incubation, that is, the time elapsing from the period of exposure to that of the development of the illness, is from ten to fifteen days. The young pigs become affected first while a large percentage of those over four months will escape.

Symptoms.—The first and most prominent symptom is that of coughing, and this persists throughout the entire course of the affection. There is also more or less difficulty in breathing. The cough at first is weak, but soon becomes loud and is attended with considerable effort. It comes on in paroxysms, and then there is a longer or shorter interval of quietude. They are almost certain to occur when the pigs first stir about and when they take their meals. If the quarters are clean and the weather pleasant the coughing is about the only symptom observable. There is little loss of appetite and little fever. If the weather becomes cold, wet or stormy, the paroxysms of coughing come closer together, sometimes amounting to almost continuous coughing. There will be a marked difficulty in breathing, loss of appetite and fever. There will be other symptoms of illness, as rough coat, stiffness and weakness. Under such conditions there will be a considerable loss of the weaker pigs in the litter, and especially those under eight weeks of age.

The disease may be confused with swine plague or hog cholera. It can be differentiated from the plague from the fact that the latter disease attacks older hogs, and the death rate is highest in old hogs. It can be distinguished from cholera by the fact that there is little bowel disturbance and much lower death rate.

Post-Mortem.—A post-mortem examination reveals clearly defined red patches spread over the lungs. They are most numerous along the edges, particularly along the lower edge of the anterior lobes. On section they show a uniform red color or dirty, rusty gray. They are more solid than normal tissue. There will be more or less frothy mucous in the diseased areas and the bronchi are injected with blood. The lung tissue is firm and dry. The lung pleura over the affected area is diseased, but that opposite on the costal pleura is seldom involved. The heart and pericardium remain normal unless the lung is affected in the immediate vicinity. The bronchial glands show enlargement. The abdominal viscera remain normal.

Treatment.—As far as possible the treatment should be preventive. Pigs that are coughing should not be turned into lots with pigs that appear healthy. Should the disease break out in a litter, the whole litter should be removed from the piggery, the bedding burned and the pen whitewashed. The pigs should not be allowed on the range used by other pigs.

The treatment of the disease itself consists in securing dry, clean quarters, as little exposure as possible, rich but not bulky food, and trust that age will help give resistance. The administration of creolin or coal tar creosote preparations at the rate of a teaspoonful to the hundred pounds of weight has a good effect. It is best given mixed with the milk.

Actinomycosis. Causes.—Actinomycosis is an infectious disease commonly seen in cattle, but which may occur in hogs. The specific cause is a fungus, cladothrix actinomyces, or ray fungus. Its natural habitat is on plants (barley, wheat, etc.), and it has been found on the awns or beards of these grains imbedded in the tongue of hogs. The parasite gains entrance to the body through a wound in the mucous membrane of the mouth or in some other part. It has been known to follow castration. Inhalation of the fungus may cause the disease.

Symptoms and Lesions.—These occur as a result of the fungus multiplying in the tissues and causing them to break down. Tumors form on the jaw or in any part of the body as a result of the infection. Frequently the lungs are affected. When the disease is generalized, the pig presents an unthrifty appearance. As in tuberculosis, the disease may not be recognized until the pig is slaughtered.

The fungus appears in the affected tissues or in the pus from an abscess, as very small, yellow granules that can be seen with the naked eye. These granules when placed under the microscope are found to be made up of resettes, each composed of a number of club-shaped bodies radiating from a central mass which is composed of the mycelial part of the fungus, a fine thread-like structure. The clubs vary in size, but are usually from 1 to 10u long.

Treatment.—The most practical method of handling cases of actinomycosis in pigs is to send them to the abattoir. In most cases the lesions are localized and the part is tanked. If generalized the animal should be condemned. If we desire to treat the pig, twenty grains of iodide of potassium can be given in the feed daily for at least two weeks until the symptoms of iodism are produced. The drug must be then discontinued, and if the tumor does not become smaller in a few weeks, the treatment should be repeated.

Anthrax.—Some literature on diseases of the hog regard hog cholera and swine plague as forms of anthrax. Formerly this error was not well understood by swine breeders, and undue prominence was given to a disease that is rarely seen in hogs outside of permanently infected sections of the country.

Causes.—Anthrax is caused by an organism, Bacillus anthracis, and is found in diseased tissues from animals affected with the disease. If the tissues of an animal that has died of this affection are exposed to the air, the germ will form spores which are very resisting to destructive agents. When once these spores are introduced into a locality they tend to remain there for years, and whenever the conditions are favorable, will cause an outbreak of anthrax. These spores are frequently carried on the hides, wool, hoofs, horns, etc., removed from cattle having anthrax, and outbreaks may occur as a result of the refuse from tanneries infecting pastures on which sheep and cattle graze. Hogs are not very susceptible to anthrax, and the common mode of infection is by feeding on the carcass of some animal that has died from this disease. Cases have been reported, however, where the disease was due to inoculation with the germ.

Symptoms.—The pharyngeal and intestinal forms of anthrax are the most common forms in the pig. The animal is feverish, the breathing labored and there is difficulty in swallowing food. The pig is very weak and disposed to lie down most of the time. A swelling may appear in the intermaxillary space and spread along the course of the trachea. The neck is usually stiff and saliva dribbles from the mouth. The skin is sometimes stained with blood and the mucous membrane cyanosed or dusky brown. Ulcers may form on the mucous membrane lining the throat, tongue and palate. Carbuncles sometimes form on the skin, especially on the back. Death occurs from suffocation.

Lesions.—The blood is tar-like in appearance, and hemorrhages varying in amount from small petechial spots to a permeation of the organ or tissue are seen. Submucous, subserous, and subcutaneous gelatinous and serous infiltrations occur. At the seat of the inoculation the tissue may be necrotic. The spleen is enlarged and there is a porenchymetous inflammation of the liver and kidneys. In the very acute cases these changes are slight. The longer the course of the disease the greater are the changes in the tissues. The bacillus anthracis is present in the diseased tissues and in order to confirm a diagnosis, we should prove its presence.

Treatment.—Hogs should not be allowed to feed on the carcass of an animal that has died of anthrax. Preventive precautions are all that is necessary, and no serious losses will occur if the dead animals are disposed of in the proper manner.

Rabies. Hydrophobia. Madness.—Rabies is one of the oldest known infectious diseases. Hogs do not suffer as extensively from it as do dogs, cattle and horses, but whenever an extensive outbreak of rabies occurs hogs are usually reported as dying from the disease.

Causes.—The specific cause of rabies is not known, but its being due to a specific germ can not be disputed. Rabies is a disease produced by inoculation and in most cases is due to the bite of a rabid dog. The saliva of all animals infected with the disease contains the virus of rabies, but carniverous animals are the only ones that have a very good opportunity to bite other animals when affected. The saliva from any rabid animal if rubbed into a wound or a break in the skin may produce rabies. Hogs sometimes show a disposition to bite, and may infect other animals. The average period of incubation is from two to three weeks.

Symptoms.—Rabies in hogs is characterized by very much the same train of symptoms as occurs in other animals. The hog is very restless and excitable, and if lying down or hidden in the litter may jump up suddenly, squeal and run about as if pursued. They are very nervous and easily startled. The eyes are at times fixed or may roll about and there is an abundant secretion of saliva. Frequently they will gnaw the boards of the pen, bite other animals and swallow indigestible substances. Swallowing is difficult on account of the early paralysis of the muscles of deglutition.

The duration of the disease is short. Paralysis occurs early and the hog lies or hides in the litter most of the time and pays no attention to its surroundings. It becomes weak or emaciated and dies in a few days.

Lesions.—The changes in the tissues are neither constant nor specific. The most constant lesions are microscopic in character and are found in the brain. A congested condition of the mucous membrane lining the pharynx, larynx and stomach, enlargement of the spleen and hyperemia of the brain are sometimes seen. Frequently the stomach contains foreign matter, such as stones, straw, pieces of wood, etc.

Treatment.—The treatment of hogs in any way is not practicable. As soon as a hog develops the disease it should be destroyed or isolated in order to prevent its spreading the disease.

Tetanus. Lockjaw. Causes.—Tetanus is caused by a specific germ, Bacillus tetani. This organism exists in most soils, but is more common in some localities than in others. In warm climates it is more abundant than in cold, and dirt rich in organic matter seems to be the favorite place for it.

It enters the body by way of a wound, sometimes so slight as to escape observation. It may follow as a result of castration, in fact any deep or punctured wound that is not open to the air is suitable for its development. Tetanus germs differ from, some of the other forms of germs in that they do enter the circulation and become distributed to different parts of the body, but remain at the point of infection. There they manufacture poisons (toxines and ptomaines), chemical products that are taken up by the circulation and have an action on the nervous system similar to strychnine.

Symptoms.—The acute form of the disease is usually seen in hogs. The spasms begin with the muscles of the jaws and the face, and spread rapidly to other parts of the body, involving especially the back and limbs. Shortly the hog becomes unable to stand, falls on its side and is unable to get up. It remains in this position with limbs extended and rigid. The respirations are labored; frothing at the mouth is noticed. Convulsions may occur. The protrusion of the third eyelid is characteristic of this disease. It is very fatal in pigs and they usually die in a day or two.

Treatment.—This is limited to preventive treatment, and consists in taking all the necessary precautions against infection at the time of castration and spaying. Medicinal treatment is of little use. The hog should be placed in a pen by itself and be kept as quiet as possible. If it will eat, a sloppy diet should be used. The bowels must be kept open by injections and cathartics.

Simple Pyemia and Septicaemia. Blood Poisoning.—The name septicaemia and pyemia are given to morbid conditions produced by bacteria that cause septic poisoning and abscesses to form in different parts of the body. Septicaemia indicates a general infection, and may result in the enlargement, engorgement or the formation of necrotic centers in the liver, kidneys, lymphatic glands, etc. Pyemia is characterized by the formation of abscesses in different parts of the body. Both of these conditions may exist at the same time.

Causes.—These are the pus-producing microbes, especially staphylococcus pyogenes aureus or albus and streptococcus pyogenes, that enter the tissues through bruises or abrasions that permit the germs to become lodged beneath the skin, or through extensive wounds. Sometimes they remain at the point of infection, but may be transferred from here by the blood stream at different points, forming supurating centers or infect the tissues generally and become widely distributed. This condition is not rare as a result of putrifactive changes in the uterus following an inflammation of the organ, or as a result of retention of the foetus.

Symptoms.—Unless the symptoms follow an extensive infection, resulting from a difficult birth, an operation or a large wound, the owner does not connect them with a disease of this nature. At the point of infection an abscess may form or the part become greatly swollen and oedematous. The body temperature is elevated, and in serious cases the appetite becomes impaired. Muscular tremors may be noticed, and the hog becomes dull and stupid. It is generally seen hiding in the weeds or litter or in some cool, quiet place. Sometimes the animal has a diarrhoea. In serious cases it becomes greatly emaciated and death may occur in a few days. Recovery frequently occurs, and in time the hog begins to thrive.

Treatment.—The treatment is mostly preventive, and consists in proper care being given most wounds, especially if extensive, and in using antiseptic precautions in all operations on the pig. Abscesses should be opened promptly. The opening should be made at the lowest joint, so that all the pus can drain out. The after treatment consists in washing the cavity with an antiseptie wash for a few days. The opening should be made large and not permitted to close until the cavity has entirely filled in. In large wounds we should try and bring about the formation of a healthy granulation surface as soon as possible. If necrotic or dead tissues form in a wound it must be removed and a healthy surface promoted by the use of antiseptic dressings. In cases of local septicaemia this is all the treatment necessary. When the disease is generalized, the treatment is usually hopeless. Alcohol, salicylate of soda and quinine are the drugs usually given in these cases. Plenty of clean water should be allowed. The animal should be coaxed to eat easily digested and highly nutritious food in order to prevent its becoming weak.

Infectious Arthritis. Causes.—This disease occurs in pigs a few days old and is caused by septic germs that enter the system by way of the navel or umbilicus. Filth and dirty pens are among the predisposing causes. If the disease has once occurred in a pen it is very apt to recur from year to year.

Symptoms.—The pig becomes very weak, refuses to suckle, is feverish and usually has a diarrhea. The affected joints are swollen and painful. Abscesses form in different parts of the body, sometimes about the umbilicus, and may contain considerable pus. Occasionally the abscesses about the joints break or one of the feet drops off. In case the pus is along the umbilicus it may discharge outside and recovery take place. If it discharges into the abdomen death is sure to occur.

Treatment.—This is wholly preventive. If the disease exists in a litter, the pen should be thoroughly disinfected and the bedding burned. Sows should not be permitted to farrow close to an affected litter or in a pen where an affected litter has been kept, unless it has been well cleaned and disinfected. Washing the umbilical cord with a ten per cent. solution of creolin or carbolic acid should be practiced when the disease is present in a herd. This will cause the cord to become hard and dry, and will prevent the entrance of the germs as well as disinfecting the cord.

Parasitic Diseases. The Hog Louse.—But one species of lice attack hogs. It is a common parasite, however, and often appears in formidable numbers, especially on pigs and when poor and stunted. The hair affords the lice but little protection, and vigorous, healthy hogs are able to dislodge the pests by rubbing against the sides of the pen and against one another. When hogs reach the abattoir during the warm weather the adult louse is seldom found on them, but plenty of "nits" are usually seen. The lice become dislodged during the shipment and when in the pens by the frequent soakings with water that the hogs receive and by their being packed so closely together.

It is only when a hog is unthrifty or sick that lice are a serious menace to the animal. When in this condition the hog seems to be unable to dislodge them and they multiply very rapidly. The bite of the hog louse is very irritating, and it lives by sucking the blood of its host. The irritation from the bites makes it almost impossible for the hog to rest, and if sick they help to increase the anemic condition. Lice are a serious handicap in growing pigs, interfering with their appetite and general nutrition. They are said to cause urticaria.

Because of the thinness of the hair and the size of the parasite it is quite easily seen. The favorite seats are back of the ears, along the neck, under the breast, back of the arms and on the inside of the thighs; in fact, any place where the skin is moderately thin and where they can not be easily dislodged.

The hog louse (Haematopinus urius muzsch) is one of the largest species of the family. When full grown it measures a fourth of an inch or more in length. Its general color is gray, with the margins of the head and throat and most of the abdomen dark. The head is quite long, the sides nearly parallel, with strong eminences just back of the antennae, which are set on the side of the head midway from rostrum to occiput; the legs are lighter with dark bands at the joints; the spiracles are enclosed by a black chitinous eminence, and there is a broad black band on the last segment, broken near the middle.

The male has the abdomen marked beneath with a large black area extending forward from the terminal segment. On the feet is an organ that helps the louse to cling to the hair.

The eggs are six-hundredths of an inch in length, by three-hundredths of an inch in width. They are slightly yellow or dusky whitish in color, and taper somewhat toward the point of attachment. They are usually attached near the base of the hairs.

Treatment.—It is more difficult to kill the lice scattered around the hog house and yards than it is the ones on the hogs; for this reason it is difficult to get rid of the lice in a drove of hogs, as they again become affected in the sleeping quarters or about the pen. The hair affords but little protection for them, and makes the application of remedies for their destruction quite easy. A number of different remedies and methods of applying them can be used. Kerosene, any of the coal tar products and crude petroleum are common remedies. The hog can be sprayed or dipped with these preparations.

An ingenious method of applying the oil is by means of the rubbing post. A good solid oak post a foot or a foot and a half in height is placed in position in the hog lot. One hole is bored in the top at a depth of about eight inches and two at right angles from the side at the bottom of the vertical hole. Soft pine pins are driven in the side holes. The upright hole is filled with kerosene and stoppered. Next a burlap strip eight or ten inches wide is wrapped around the post over the side holes. This after a time becomes soaked with kerosene and the pig will rub against it at the place where it will do the most good. This is not a very thorough way, however, of using the remedy. A better way is to use a spray pump having an attachment for mixing the oil and water. Five parts of water and one part of oil should be used. Three or four sprayings are required to kill all of the lice. The work should be done at intervals of a week and in the evening. If done in the evening, by the next morning the oil is evaporated and there is no danger of the sun blistering the skin, as would be the case if sprayed during the early part of the day.

The coal tar preparations are to be preferred as remedies for lice. These are zenolium, chlotonaptholium, milk oil, daytholeum and a number of others. The hog can be sprayed or dipped with any of these preparations. Dipping is to be preferred, as it is a very effective method of getting rid of lice. Pigs a few weeks old can be caught and immersed in a barrel. If a large number are to be treated it is best to have a dipping tank. The tank should be sunk in the ground and contain enough of the solution to cover the hog when it jumps into it.

Crude oil is the cheapest material to use as a dip. The tank is filled with water to the desired depth and one inch of the oil poured on the top of it. The hogs are then driven through, and a thin layer of oil is deposited on every part of the animal.

Mange. Scabies.—This affection of the pig is frequently alluded to in journals devoted to the swine industry and is described in nearly all of the old works on diseases of swine. It is a rare affection, and of little economic importance. Because of the disease being so frequently mentioned we include it with the other parasitic diseases.

Hogs have two forms of mange—the sarcoptic form, due to the Sarcontes scabies var. suis, and the demodecic form, due to Demodex folliculorum var. suis.

The domodex of the pig (Demodex folliculorum var. Suis Simon) is a worm-like parasite and shaped something like a laurel leaf and about one one-hundredth of an inch in length and one one-fifth as broad. It comprises three parts—head, thorax and abdomen, the first two being joined in a single organ. The mouth parts are horseshoe shaped. Their length and the cephlo thorax is about equal to the length of the abdomen. The mouth parts comprise: First, a pair of mandibles; second, a pair of jaws; third, a narrow tongue. On the sides of the thorax are four pairs of short, mobile legs formed of three parts, the last part being fitted with two claws. The abdomen is long, conical and straited transversely. It shows at the anterior part of its ventral face a longitudinal slit; the anus, which is much larger in the female than in tne male, may serve for copulation and ovulation. The abdomen of the male is less developed than that of the female, and possesses a genital armature situated immediately in front of the anus.

The young parasites are small and narrow and have but three pairs of legs. The eggs average twenty-five-hundredths of an inch long, and are oval in shape. The larvae undergo three metamorphoses before reaching the adult stage. It no doubt passes through the different stages of development in the follicles of the skin, but may migrate over the surface of the skin when they reach the adult stage and before laying eggs.

Symptoms—The finer parts of the skin are affected; the snout, neck, chest, abdomen, flank and inner part of the thighs. The inflammation begins in the region of the hair follicles and sebacious glands. Pimples and pustules varying in size from that of a grain of sand to that of a hazel nut appear. As the disease progresses large purulent islands varying in size and containing many acari are formed. Ulceration may follow. In the older diseased areas and when the disease lasts for a long time, the skin becomes sclerotic and many times its normal thickness. Inside of the pimples the mites can be found in all stages of development. In the small abscesses there may be from fifty to one hundred, in the larger ones a thousand. Follicular mange is said to be more contagious in the hog than it is in other animals, and is considered a serious disease.

The scab mite (Sarcoptes Scabies var. Latr.) is one of the largest of the species, and when found can be seen with the naked eye. They work deep in the skin, and it is difficult to find them. The female is about one-fiftieth of an inch long and almost as broad. The male is not as large. The mite has eight very short, thick, conical-shaped legs, the two posterior ones being quite or almost concealed beneath the abdominal surface. On the dorsal surface are a number of parallel ridges interrupted by conical projections. Toward the posterior part of the body are a few hairs.

Symptoms.—It begins with a violent itching about the head, especially at the base of the ears, about the eyes, and gradually extends to the neck, withers, inner surfaces of the thighs and the whole body. The invaded areas of the skin are first covered with little red pimples. Abrasions from the hog rubbing itself soon occur. The secretions and scales from the skin gradually accumulate, the bristles drop out or become matted and the skin is greatly thickened and wrinkled. In old cases the scales on the skin give it a dirty white color.

The mites live in galleries in the deeper layers of the skin, and they multiply rapidly. Hog mange is not communicable to other animals.

Treatment.—Hog mange is difficult to treat. It does not seem to spread rapidly among hogs and can be easily controlled by isolating or destroying the affected animals. The pig houses and pens should be disinfected or the pigs moved to fresh quarters after being treated. Before applying the remedy, the skin must be scrubbed with a strong alkaline soap in order to remove as many of the scabs as possible. A tobacco dip can be used. but in severe cases a mixture of eight parts oil of turpentine and one part flowers of sulphur is a better remedy. It is best to apply the remedy with a brush and rub the skin quite hard. Sulphur or nitrate of lead ointment may also be used.

Internal Parasites. Ascarides of the Pig.—The natural habitat of the common round worm of hogs is the small intestines. It may be found in the large intestines, but its presence there is accidental. They are sometimes found in the stomachs of hogs examined a short time after death. This is due to reverse peristalsis of the intestines or to the movements of the worms themselves, and they are destroyed in a short time by the media in the stomach. It is not unusual to find them extending into the common bile duct, some even enter the gall bladder while others imbed themselves in the ducts coming from the various lobes of the liver.

In young and unhealthy pigs they are a common parasite. It is not unusual to find from ten to twenty of these large white worms in a single individual. They may be so plentiful as to fill the lumen of the intestine for several feet of its length. In examining the intestine of twelve hundred apparently healthy hogs, 10.5 per cent. were found to contain round worms. Men who treat hogs for hog cholera and swine plague, and who frequently examine hogs that die of this disease, are quite familiar with this parasite and report it as being very common.

Description.—The ascaris suilla dujardin is a large, round worm, tapering at both ends, milky white or yellowish white in color, and having a firm elastic body and a distinct digestive tract. The female is about eight inches in length and one-fifth of an inch thick. The male about six inches long and one-eighth of an inch thick. The head is small and armed with three lips, the upper one having a papillae at each of its inferior angles, the other two at the middle of their base. The female organs consist of a pair of convoluted tubes, each of which dilates into a uterus, and both uniting to form a single tube, the vagina. The vulva is situated toward the anterior third, in the middle of an anular constriction. The male organs are simple, consisting of a single tube, convoluted, dilated below to form a seminal vesicle and terminating in an ejaculating duct, which opens into the cloaca. The posterior extremity of the male is furnished with a large number of papillae, some of which are back of the anus. The ova are about one four-hundredths of an inch long.

Source of Infection.—The eggs of the ascaride are passed out with the excreta and drop on the ground. Moisture and warmth are necessary for their hatching. They are very resisting to adverse conditions and may resist dying for some time. When the conditions are favorable, the eggs hatch outside of the body, and the pig becomes infected by taking the immature form of the worm into the digestive tract along with the food; or the embryo when well formed in the egg is taken into the digestive canal, the shell dissolved by the digestive juices and the embryo liberated.

The hog becomes infected through its food supply. The embryonic worms may be swallowed in the drinking water or with its food. Earth eating pigs are pretty sure to become affected. Feeding hogs on dirty floors or on the ground and drinking from ponds and dirty watering troughs are all sources of infection.

Symptoms.—Unless a number of ascarides are present in the intestine no noticeable symptoms of parasitism occur. Not infrequently the pigs become unthrifty and worms may be passed in the stools. Whenever the general conditions are such as to bring about a stunted condition, the pig may become seriously infested. The irritation to the intestine greatly aggravates such a condition. They act as an obstruction to digestion, and the maintenance of the colony of worms taxes the animal severely. It is in pigs weighing from twenty-five to one hundred pounds that the most loss from this parasite occurs. In old thrifty hogs round worms are unable to multiply, and we seldom find them present in large enough numbers to cause harm. In connection with other conditions, they may cause chronic indigestion.

Treatment.—This is both preventive and medicinal. The preventive treatment consists in bettering the sanitary conditions, pure water, clean troughs and feeding floors. To enable the pigs to resist invasion, they must be kept in as good a condition as possible.

To destroy the worms or drive them from the intestines a number of different drugs can be recommended—spirits of turpentine, powdered worm seed or areca nut, salol and calomel. The simplest treatment is to mix turpentine in milk and allow the pigs to drink it. The dose usually given is one teaspoonful for each one hundred pounds of weight. A mixture of areca nut and worm seed is given in the same size dose. A very good remedy is a mixture of santonin and calomel; from three to five grains of santonin and one or two grains of calomel. This should be put up in powders large enough for five or ten pigs. All powdered drugs are best given in meal and should be well mixed or each pig will not get the proper dose. Not more than ten or fifteen should be treated at a time. The best results are gotten when the pigs are starved for about twelve hours before dosing them, and when a physic is given along with the remedy or following it. Castor oil or calomel are the purgatives usually given, especially the latter, as it is very effective, and can be readily mixed with the powdered drugs. The turpentine treatment need not be followed by a purgative.

Thorn-Headed Worm.—Among the parasites of the small intestine is found one species of the genus Echinorhynchus. It is usually found with its proboscis imbedded in the mucous membrane of the small intestine well toward its anterior portion. It is seldom found in the large intestine. Infection from both the round and thorn-headed worms is frequently seen in the same animal. The two genera are quite distince, and the most careless observer is able to distinguish between the two. The echinorhynchus is not as common a parasite as the ascaride, and is not found in as large numbers as the latter. We seldom find more than eight or nine thorn-headed worms in the one hog.

Description.—The Echinorhynchus gigas Goeze is larger than the ascaride. It is the largest species infecting hogs. The male is from two and a half to four and a half inches in length; the female from six to eleven inches long and in the thickest part of the body almost as large as a lead pencil. The body is white, irregularly wrinkled transversely and attenuated behind. At the anterior extremity is a retractile proboscis or rostellum, almost globular in shape and armed with six or eight rows of chitinous hooks. These hooks are curved backwards and arranged irregularly. The proboscis may be retracted into a muscular sheath, attached to which are strong retractor muscles which can be seen toward the anterior part of the body cavity. No intestine is present. At the base of the rostellum are two muscular sacks which hang down into the body cavity, and are possible representatives of a digestive tract. The genital openings in both sexes are at the posterior extremity of the body. The edges are smooth and cylindrical in shape and contain hooked embryos. They average about one two hundred and fiftieth of an inch in length.

Source of Infection.—The eggs are passed out with the faeces and become scattered around the pastures, around the pens and mixed with the manure. White grubs, which are very plentiful around dung hills, eat the eggs and become infested with the larvae and act as intermediate hosts. Hogs eating these grubs are in turn infested with the adult worms. Hogs will search diligently for these in loose rich soil. Some seasons they are more common than in others, and the extent of infection to a certain extent will vary according to the locality and the season of the year.

Symptoms.—When a number of these thorn-headed worms are present in the intestines, they greatly irritate the lining membrane and may cause serious symptoms, especially in young pigs. Where the worm attaches itself there is a small inflamed area of tissue a quarter of an inch or more in diameter. Sometimes the lesions are no larger than a pin head. The inflamed areas are circular in outline and depressed in the center, where the rostellum is imbedded and the mucous membrane is thickened, firm and reddened. The proboscis may be buried more deeply than the mucous coat and involve the muscular coat as well. Instances where the wall of the intestine was perforated have been reported.

The symptoms as described by observers are loss of appetite, constipation, diarrhoea, restlessness, general emaciation, weakness of the loins, and, in very young pigs, convulsions and spasms. The majority of cases present no symptoms at all and the worms are only found at slaughtering.

Treatment.—It is not best to allow hogs to root around old straw stacks and manure heaps. The best treatment for the thorn-headed worms is the turpentine treatment, as recommended for the ascaride. It should be given on three consecutive days. All vermifuges if followed by a purgative are effective. Better results are secured if all food is withheld for about twelve hours before administering a remedy. This can be easily done by keeping the pigs in the pen at night and dosing them in the morning.

The Pin Worm.—The pin worm, Oesophagostoma dentatum, is quite small. It inhabits the caecum and colon of hogs, and may be found in large numbers in this part of the intestine. Unless looked for carefully, it is not noticed.

Description.—The body is white or brownish in color, straight and pointed at both ends. The male is half an inch in length; the female a little longer. The mouth is circular and surrounded by a ridge on which are several papillae. The caudal pouch of the male is bell-shaped and rounded, with a faintly marked middle lobe. That of the female is pointed. The vulva is situated in front of the anus and surrounded by a raised ring.

Little is known of its life history. It causes but little if any digestive disturbances. Irritation to the walls of the caecum or colon does not interfere as much with digestion as would an irritation to the stomach or small intestine. They are seldom present in large enough numbers in the intestine to cause any noticeable irritation, but no doubt in conjunction with other parasites, they help to aggravate the symptoms of parasitism. The pig becomes infested through the food supply.

The Whip Worm—Description.—This worm, trichocephalus crenatus, is commonly found in the large intestines. It is about one and a half inches in length. The anterior part of the body is capillary and very thin, the posterior part of the body suddenly expanded, thick and cylindrical in shape. The caudal extremity of the male is coiled, and a number of short spines are seen behind and around the sheath of the spicule, the point of which is rounded.

Method of Infection.—The pig becomes infected by taking the eggs into the digestive tract along with the feed or drink. The eggs usually contain well formed embryos which are said to develop into the adult form within the host in about four weeks.

Symptoms.—No serious trouble is attributed to the whip worm. When numerous they no doubt cause considerable irritation and may aggravate the symptoms in other parasitic affections.

Treatment.—The same treatment as recommended for other forms is indicated here. In addition rectal injections of soapy water can be administered.

The Kidney Worm.—When a hog is paralyzed in its hind quarters the swine breeder usually calls the disease "kidney worm." This statement may also be used when the pig is not doing as well as it should. A few years ago this parasite was claimed by some to cause hog cholera and swine plague. The origin of these statements is not reliable, and the presence of the worm in these cases is only a coincidence. Most investigators have never found the kidney worm in hogs paralyzed in the hind parts, but there is no reason why hogs in this condition should be any more exempt from this worm than well hogs.

The kidney worm occurs in the fat around the kidney, in the kidneys and sometimes in the liver. It is usually found in cysts or canals and several may be seen in one cyst. They more often occur in pairs. There seems to be more connective tissue in the region of the cyst than in the rest of the fat and it may contain pus. It is not uncommon to find kidney worms in the pelvis of the kidney, and frequently its walls and the ureter are inflamed and thickened. Sometimes the kidneys are inflamed and contain abscesses. The latter condition, in the absence of the kidney worm, is not uncommon.

Description.—The kidney worm, sclerostoms pinguacola, is mottled, but when seen against the fat appears dark colored. The body is cylindrical, plump and slightly tapering at both ends. The male is from an inch to an inch and a half in length and about one twenty-fourth of an inch thick. The caudal extremity forms a blunt end, in which is situated the anal and genital openings. Surrounding the body openings is a six lobed bursa. There are two long, slender spicules having muscles attached to their upper ends and when extruded can be drawn within the body. The female is some larger than the male and will average about an inch and a half in length and one-twelfth of an inch thick. The curved tail has a conicle shaped tip and is winged laterly. The anal opening is very close to the extremity of the tail and ventral. The vulva is situated about one twenty-fifth of an inch in front of the anal opening. The reproductive organs consist of two ovaries, two oviducts, two uteri and a bicornate vagina. The eggs are oval in shape and about one two-hundred and fiftieth of an inch in the longer diameter.

The mouth is terminal, circular in shape and surrounded by papillae. The alimentary tube can be divided into buccal cavity, oesophagus, stomach intestine and rectum.

Method of Infection.—The way in which hogs can become infected has never been demonstrated. In all probabilities the eggs pass out in the urine, and the embryo after developing for a time in some moist place or in water is taken into the body with the food the same as in other parasitic forms. It is believed that no intermediate host is required and the infection occurs direct.

Symptoms.—Hogs affected by the kidney worm rarely show symptoms of disease. In some cases diseased changes are noticed in the kidneys and in the fat around them; sometimes the liver shows a few lesions. In these cases the symptoms manifested are the same as manifested in diseases of these organs.

Treatment.—The preventive treatment indicated is the same as for the intestinal forms. It is useless to try and treat them as they are beyond the reach of any medicine.

The Lung Worm.—The lung worm, Strongylus paradoxus, is a common parasite of pigs under six months of age. It is found in the bronchial tubes. When the infection is slight the worms are found mostly toward the apex and margin of the lungs. In these cases the lesions are not marked, and it is necessary to examine the lung very carefully in order to dectect them. In examining lung tissue for this parasite, it is best to cut off the apex and by squeezing it between the fingers, force the lung worm out of the broncheole onto the cut surface of the lungs, where they can be readily seen. It is the only lung worm affecting hogs and may occur in sheep.

Description.—The male is a little over three-quarters of an inch in length. The bursa is provided with numerous folds; the caudal extremity at the base of the bursa is curved toward the ventral aspect; two very long tubular spicules project outside about one-tenth of an inch. The female is from an inch to an inch and a quarter long. The vulva is surrounded by a vesicle or bladder-like body, visible to the naked eye. Surrounding the mouth are six lobes, the two lateral ones being the largest. The color is whitish or brown.

Lesions.—These are usually slight and depend on the number of living worms present and the duration of the infection. The worms are found in the bronchial tubes mixed with the mucous. When badly infected, the mucous membrane lining the smaller tubes becomes inflamed. As well as irritating the air tubes, it acts as a mechanical obstruction and may plug up the smaller bronchi and will cause a lobular pneumonia. The involved air cells usually return to the normal but may go through other pathological changes. In some cases the effect is to enlarge the bronchi or to cause saculation.

Method of Infection.—The life history of the lung worm is not fully known. In most domestic animals infection with lung worms depends largely on the humidity of the soil, and is more prevalent on swampy pastures containing ponds and stagnant water than it is on high ground. On wet years this disease is more common than on dry years. Lung worms are often present in pigs when kept under the best possible conditions.

The eggs are laid in the bronchial tubes. Before they hatch it seems necessary for them to be expelled by coughing and undergo a part of their development outside of the body. Just what these changes are is not known. In all probabilities the pig becomes infected through the food supply, by rooting in the mud and by inhaling the immature form in the dust that may accumulate about the sleeping quarters and pens as a result of the mud carried on the bodies of the animals.

Symptoms.—The disease is largely confined to pigs. The first symptoms begin as a cough, occurring upon leaving the bed, after exercise and after eating. In badly infected cases the paroxysm of coughing is quite severe. Beginning slowly and becoming harder and harder, and finally the pig will put the nose on the ground and press hard while coughing. The paroxysm ends by the expulsion of some mucus or by vomiting. This is referred to in the journals as whooping cough in pigs. The cough may become frequent and persistent and is generally spoken of as chronic. In the majority of cases the infection is so slight that the presence of the lung worm is not suspected by the owner. The appetite remains good in these cases, and the thriftiness of the pig is not interfered with. Death seldom occurs and as the pig grows and thrives, it gradually recovers from the affection.

Treatment.—The most important part of the treatment is to keep the pig in a healthy, growing condition. The hygienic conditions in the pastures and pens should be as nearly perfect as possible. The drinking water should be pure and the ponds and mud holes drained or filled in. Clean watering troughs and feeding floors are also necessary. The sleeping quarters should not be allowed to become dusty. Medicine is of little value in this disease. A fumigation of tar or turpentine may be tried if desired. More can be accomplished by feeding a highly nutritious ration, and waiting until age will give the necessary strength and resistance to overcome the disease.

Parasitic Diseases of the Liver—Echinococcus Hydatids.—The disease caused by the larval stage of the taenia Echinococcus is known as hydatid or Echinococcus disease. Dogs and wolves act as hosts for the mature form of this tapeworm, and the immature form is found in domestic animals. It is commonly found in hogs and cattle and is frequently seen in the liver, lungs, etc., of animals killed in the abattoir. Man may also act as host for the larval form.

Description.—The larval form appears in the form of cysts, generally in the liver, but they may be found in the lungs, heart and various other organs of the body. After four weeks from the time of becoming infected by the embryo, small cysts about one twenty-fifth of an inch in diameter may be noticed in the infected organs. The outer wall of the cyst is formed by the connective tissue of the organ in which it is located. Within this is the young parasite. Its outer part or capsule is rather transparent, the inside granular and somewhat condensed on the periphery and containing cells which are distinctly separated from one another. The cyst grows slowly and at the end of eight weeks has about doubled in size. The elastic cuticle is then much thicker and its inner surface is covered by a thin membrane, the germinal layer, which represents the condensed granular contents. In the center of the cyst is a cavity containing a clear watery fluid. As the hydatid grows, the cuticle becomes stratified and the germinal layer becomes differentiated into small cells occupying the periphery, large cells on the inside and granular cells occupying the irregular spaces on the surface. At the end of nineteen weeks the parasite is about two-fifths of an inch in diameter. Protuberances gradually grow into the cavity and develop into broad capsules, and it is in these capsules that the head of the succeeding generation of tapeworm develops. Numerous broods of capsules may form in one cyst and many thousand heads may be present in one hydatid. Several modes of growth are open for the parasite. Centers of growth may form in the wall of the hydatid; these are called daughter cysts. In turn a third generation may form in the same manner in the daughter cyst; these are called granddaughter cysts. As they develop, they will burst through that part of the hydatid wall offering the least resistance, sometimes on the inside of the wall and sometimes on the outside of it. For this reason they are called endogenous and exogenous cysts. When a group of small hydatids lie close together and are connected by a common stroma, they are called Echinococcus multilocularis. Sometimes as a result of the formation of daughter and granddaughter cysts, they take on the form of a bunch of grapes; they are then named E. racemosus.

Sometimes the hydatid is headless and consequently sterile. This condition is called Acephlocyst, and does not represent the final larval stage.

The changes in the tissues vary. There may be an enormous increase in the size of the lungs or liver. The serous membrane which covers the liver is thickened and may be joined to the neighboring organs. Its surface is uneven, the salient places corresponding to a cyst. There is an atrophy of the liver cells, the amount of connective tissue is increased and forms a capsule immediately surrounding the parasite; the surface of the capsule which is smooth and glistening is entirely separated from the cuticle of the cyst. On section the liver is found to be filled with cavities, with the liver tissue between in the form of small glands or ribbons of various dimensions. In time the cysts degenerate into a caseous or gelatinous mass in which we find the hooks of the larval tape worm.

Method of Infection.—The hydatids develop as a result of the ingestion of the eggs of the adult tapeworm. Dogs infested with the adult worm may scatter the eggs in places where they can infect the food or drinking water of the hog. In countries where dogs are numerous hogs seem to be more commonly infected. Hogs in the region of slaughter houses where insufficient attention is paid to the destruction of the immature form, become infected by eating the disease tissues.

Symptoms.—The symptoms are not characteristic and frequently are entirely absent. When the liver contains a large number of cysts, pressure on the right side of the abdomen just over the organ may cause the animal pain. On percussion we find an increase in the size of the liver. If the increase in size is many times the normal, the abdominal viscera are greatly pressed on, the function of the organ is greatly interfered with and digestive disturbances occur. When the lungs are involved, symptoms of pulmonary tuberculosis may be manifested. If any important organ is severely infested, death may result.

Treatment.—Preventive treatment is of the utmost importance. It consists in destroying all organs infected with hydatids. Dogs known to be infested with the adult taenias should be destroyed. It is dangerous to keep dogs in this condition, as man as well as pigs may become infected from them. If such precautions were used the disease could be finally exterminated. This disease is apparently on the increase in this country.

The Liver Fluke.—The common liver fluke, fasciola hepatica, is more common in cattle and sheep than it is in hogs. Liver fluks are apparently of little importance in hogs in this country. They may affect other organs besides the liver, but it is the chief abode of the parasite. This parasite is generally found in low lands and is more prevalent on wet than on dry years.

Description.—Fasciola hepatica, L. Body; pale brown, leaf like, flattened, 18-15 mm. long by 4-13 mm. broad. The anterior 3-4 mm. forms a rather thick, conical portion which is followed by a large flat, leaf like body of elongate, oval form. This latter widens rapidly to the maximum breadth, and then decreases gradually in width to the posterior end which is bluntly pointed; cuticle is covered with numerous spines placed side by side in alternating rows; oral sucker is anterior, round and terminal, but inclines ventral; acetabulum about 3-4 mm. caudal of oral sucker, with which it closely agrees in size; genital pore median, about half way between oral sucker and acetabulum; oesophagus rarely over 1-1-½ times as long as the pharynx; intestine dentritic; cirrus frequently extended from pore and then recurved; testicles profusely branched, situated in the greater part posterior to transverse vitello-duct. Vulva is at side of cirrus; uterus forms a rosette with its numerous coils, and is frequently visible to the naked eye as a dark brown spot, immediately posterior to the acetabulum; ovary branched, anterior of tranverse vitello-duct; vitellogene glands profusely branched, and occupy the entire margin of the body from acetabulum to posterior extremity; they lie dorsally as well as ventrally of the intestine, becoming wider posterially. Oviparous.

Eggs; oval, 0.13-0.14 mm. long by 0.075 to 0.09 mm. broad; miracidium conical, ciliated with oval papillae, two cup shaped eye spots, rudimentary intestine; metamorphosis (sporo cyst, redia, cercariae) take place in small snails of the genius Linneae; L., trucatula, and others). Cercaria whitish, owing to excessive development of capsule glands; encysts upon plants.

Life History of Fluke and Method of Infection.—Although the life history of flukes is of little importance to us at present, it is well for us to know something about their development. Their life history in brief is as follows: Each adult worm is capable of producing an immense number of eggs (thirty-seven to forty-five thousand). These pass down the billiary passages into the intestines and become mixed with the faeces. Those that reach some favorable place for development after a long or short period of incubation (from ten days to three months), depending on the amount of heat and moisture, become a ciliated embryo. The ciliated embryo (Miracidium) swims around in the water and seeks certain snails (Linnea trucatula, L. rudella), and penetrates into the respiratory cavity of these animals and encysts. The sporocyst which it is now called, at the end of about fourteen days is about one fiftieth of an inch in length and the germ cells present develop into a third generation, known as rediae. The rediae escape from the sporocyst when the latter is from two to four weeks old. They then wander to the liver of the snail and from the germ cells present in the body cavity of the parasite develop the next generation, the cercariae. This latter form resembles the adult parasite. It may remain in the body of the snail for some time or pass out and attach itself on the grass or aquatic plants around the margins of the pond and encyst. The different animals become infected from eating these snails along with the food or from eating grass infested with the cercariae. The development will last from ten to twelve weeks. Each sporocyst may give rise to from five to eight rediae and each rediae to from twelve to twenty cercariae.

Lesions and Symptoms.—These are directly dependent on the presence of the fluke in the body, and as the liver is the organ generally affected and the chief abode of the parasite, the principal lesions are in this organ. The flukes are confined to the gall ducts, but may pass out into the proper tissue of the liver. There is a catarrhal inflammation of the bile ducts. The smaller ones become dilated and form cysts. The inflammatory processes extend from the ducts to the connective tissues of the liver and it becomes hypertrophied. The liver cells are destroyed to some extent, depending on the amount of infection, and a large portion of the liver is a mass of cicatricial tissue. The gall is changed in character, is less thick, greenish brown or dirty red in color and contain liver cells, blood cells, etc.

The Lung Fluke.—The lung fluke, paragonimus westermanii, is sometimes found incisted in the lungs of hogs killed in the abattoir. Dr. A. J. Payne, chief inspector in charge at Cincinnati, found in the latter part of 1898 one per cent. of the hogs killed in the abattoir affected with this parasite. The hogs were in good condition and only a few cysts were found in each lung. The muscle fluke in American swine is probably young specimens of the lung fluke.

Its complete life history has not yet been determined, but according to present knowledge the worm does not develop until after it leaves the host in the sputum. Some observers have succeeded in raising the embryonic stage, but beyond this nothing positive has been demonstrated. This worm has been found in man, cat, dog, tiger and hog.

Pork Measles.—Measles of the pig is a parasitic disease caused by the Cysticercus cellulosae, a larval form of the Taenia solium, a tapeworm sometimes found in man. The frequency of measles corresponds with that of tapeworm, as the pig becomes infected by eating human excrements which contain segments of this parasite.

The bladder worms, or cysticerci, are found in the muscular tissue, especially in the region of the abdomen, in the tongue, heart, neck, shoulders, pelvis, flank and superior regions of the legs. They may be found in other organs as well. The adult cysticerci represents a small vesicle about the size of a pea or bean, of a dull white color and provided with a head and neck. This is marked externally by a dark spot which is bent in toward the inside of the vesicle.

Method of Infection.—Man harbors the adult worm, Taenia Solium, and hogs become infested with the larvae by taking into the digestive tract the segments of the parasite that are passed out with the faeces. These contain a large number of eggs that on reaching the stomach are freed from their shells by the dissolving action of the gastric juice. The embryo is then free, perforates the intestinal wall, or enters a small blood vessel and drifts along in the blood stream until it reaches a suitable place to develop. Nine days after infection a small oval vesicle forms in the infested tissues. In twenty days the bladder worm is about as large as the head of a pin, and in sixty days it has grown to about the size of a pea. It is then enclosed in connective tissue and has fully developed hooks and suckers. Three or four months are required before it becomes fully developed and at the end of this period a well formed neck can be seen.

Degenerative changes take place quite early. The connective tissue capsule becomes infiltrated with lime salts, and gradually the whole parasite undergoes a calcareous degeneration.

Symptoms.—There are no definite symptoms. Some investigators have described as symptoms of measles, a hoarse voice, falling out of the hair, depression, loss of appetite, weakness, emaciation, a partial paralysis, diarrhoea and oedematous swellings in the region of the head, neck and shoulders. A more positive diagnosis may be made by examining the visible mucous membranes of the mouth, especially in the region of the tongue for the characteristic lesions. When the tissues in these parts are affected, small pimples may be felt or seen through the mucous membrane. Blindness, rabiform symptoms, etc., have been reported in cases of general infection of the tissues, and within a variable time exhaustion and death.

Treatment.—This is wholly preventive. Pigs should be prevented from ingesting the faecal matter of man. This can be done by using the proper sanitary precautions.

The importance of this parasite lies in the danger of man becoming infested with the adult worm. The Taenia solem is an armed tapeworm and gives rise to more serious symptoms than the more common unarmed form. The infection results from the eating of uncooked pork. Man may also become infested with the cysts as a result of the microscopic eggs entering the digestive tract. This may occur in various ways; as a result of a reverse peristalsis of the intestine carrying a gravid segment into the stomach from a contaminated water supply and from the hand becoming soiled at the time of defecation. In man the bladder worm may develop in the eye or brain and give rise to very serious symptoms.

The preventive treatment consists in tanking the parts badly infested with cysts and eating only well cooked pork.

The bladder worm, Oysticercus tenuicollis, is another tapeworm larvae occurring in the body cavity of swine. It is also found in cattle and sheep.. The adult tapeworm, Taenia marginata, is found in dogs and wolves. These bladder like bodies are a half an inch or more in diameter and are usually found on the folds of the omentum.

Method of Infection.—The eggs of the Taenia marginata pass out with the excrement of dogs and become scattered around on the ground. Infection takes place the same as in some of the other parasitic forms, the egg containing the six hooked embryo entering the digestive tract along with the food. The embryo on reaching the stomach and intestines is liberated by the digestive juices. It then migrates from the intestines either by crawling or by drifting along in the blood until it reaches the liver. About four days after infection it can be seen in this organ, lodged in the finer branches of the blood vessels which it transforms into tubes, and having the appearance of a small round kernel. After remaining here for a short time, it leaves the liver and falls into the body cavity and usually encysts on the omentum. Here it remains until fully developed, which requires several months. In time, as is the case with the cysticercus, it undergoes degenerative changes. If the cyst is eaten by a dog the scolex or head is freed from the cyst by the digestive juices, and the suckers and hooks attach themselves to the wall of the intestine and development of the segments of the tapeworm begins.

Symptoms.—The symptoms produced by the bladder worms are not noticeable. No deaths have ever been reported in hogs from infection from this worm. When the infection is heavy, inflammation in the body cavities as a result of the migrations of the larvae may occur. When this does occur, the symptoms manifested by the animal are not diagnostic. The affection then, can not be diagnosed in the living animal. Even if it could, the treatment would not differ from that recommended in peritonitis and pleurisy.

The larvae of the Taenia marginata is not of as much economic importance as the larvae of the Taenia soleum. It does not cause as serious a line of symptoms in its host as the cysticercus and does not infect man.

Trichinosis of the Pig.—Trichinosis is a disease caused by the muscles of the body becoming infested with a very small round worm, the Trichinelle spiralis. This disease is seen in man and other mammals. It occurs in two forms in the one animal; the intestinal, which represents the adult parasite, and the muscular which represents the larval stage of the parasite. The examination of the pork for trichinella, is an important part of the government inspection of pork sent to Germany. From one to three per cent. of the pork examined contains trichinella.

Description and Life History.—The adult T. spiralis is a very small worm the male a little over one twenty-fifth of an inch long, the female about three times the length of the male. The digestive tract can be divided into a buccal opening, oesophagus, stomach, intestines, anus and cloacal slit. The genital apparatus in the male consists of testicular tube, excretory canal and genital orifice. In the female of ovaries, uterus, vagina, and vulva. Internal impregnation takes place and the eggs develop in the uterus of the female to the number of at least a thousand and are born alive. These embryonic worms within a short time after birth penetrate through the walls of the intestines and migrate through the tissues until they reach the involuntary muscles. It then enters the muscle fiber, coils itself up and rests. In about two weeks the cyst can be seen and embryos become transformed into larvae. The tissue in the neighborhood of the embryo is the seat of cellular infiltration. The muscles in the region may become swollen, and may undergo more or less degenerative changes. Connective tissue forms in the region of the parasite and the cyst containing one or more larvae becomes spindle or lemon shaped. The larvae is about one twenty-fifth of an inch in length. The formation of the embryos begin about the seventh day after the cysts are taken into the digestive tract. The emigrating period is prolonged to the second or third week and the encysting period from the fourth week to the third month. After the third month degenerative changes begin in the cyst and finally involve the larvae as well. These changes (calcareous degeneration) may take place very slowly and may not occur for a year or more. When the cyst does become calcified, danger to the infested individual is over. One ounce of the flesh of an infested pig it is said, may contain eighty-five thousand encysted worms.

Method of Infection.—Infection occurs from eating the flesh infested with the live larvae of the T. spiralis. The source of the infection in swine is from eating rats. According to the investigations made by Stiles, rats around the country slaughter houses are quite generally infested with trichinella. It is rare to find the offal in country abattoirs disposed of in the proper way and as rats are abundant around such places they feed on this waste. Hogs frequently have the same opportunity as the rats to feed on offal and under such conditions infection may occur.

Symptoms.—These have been observed in experimental animals and in man. When only a few embryos migrate through the tissues, but little body disturbance is noted. The disease is characterized by two groups of symptoms; one affecting the intestinal canal, the other the muscles.

From the beginning of the first to the end of the second week after infection gastro intestinal disturbances are noticed. These symptoms are not constant. The appetite is lost, the hog is depressed, abdomen tense and the animal may vomit. Colicky pains accompanied by a diarrhea may occur. When the parasites are present in large numbers it may lead to a rapid death, but if only a few are present the symptoms of disease may end in this stage.

The muscular symptoms are due to the inflammation caused by the migration of the parasites. They are observed from the second to the third weeks. The pig may rub and scratch itself. Symptoms resembling rheumatism occur. The animal is stiff, sometimes paralyzed. Respirations are difficult, it can hardly masticate and swallow its food, and the voice is much changed. Oedematous tumifactions may appear in various regions and the pig loses flesh very rapidly. The pig generally recovers in about five or six weeks.

Treatment.—The treatment is preventive. The offal around slaughter houses should be disposed of in the proper way. Hogs should not be allowed to eat this refuse and if kept around slaughter houses at all, should be fed grain. If the symptoms of the disease are marked and a correct diagnosis can be made, all that can be done is to make the animal as comfortable as possible. As this disease is communicable to man and is often followed by fatal results, only well cooked and well cured pork should be eaten. It is impossibe for the parasite to survive the proper cooking or curing of the meat.

Immunity.—The subject of immunity and immunization is of so much interest to swine breeders that the addition of a special article setting forth the basic principles seems to be demanded.

Immunity is that power of resistance which every form of life possesses against injury or destruction by some other form. The term is used almost wholly in the sense of expressing a resistance of an individual to disease. It is an inherent quality in all animal or plant life. The resistance in the different species toward the same cause and in individuals of the same species to different causes. The term is no longer applied to the resistance of the individual to some organism but it is made to include the products or toxines of the organism. Immunization is the process by which the resistance may be increased toward any particular form of organism.

The difference in immunity in the different species toward the same cause is easily illustrated by a comparison of the diseases occurring in the human subject and in the lower animals. In the human we have, cholera, typhoid, and yellow fever, that are never found in other species. The lower animals therefore possess a very high degree of immunity toward these diseases. In swine we have swine plague that never occurs in the human. In cattle we have southern cattle fever that does not affect any other species. We have other diseases as tuberculosis and glanders that may affect the human and some of the lower forms. There are some diseases of the human that have not been successfully inoculated into the lower animals and likewise diseases of one species that do not occur in another. An individual or a species may have a very strong natural immunity to a given form but by exposure under adverse conditions or by inoculation may become affected. Immunity is therefore only a relative term and is not absolute. It is said to be strong or weak as measured by the degree of resistance under ordinary conditions.

Age is an important factor in natural immunity. The young as a rule offer a lesser degree of resistance to infectious diseases than do the old, while the latter shows a greater susceptibility to chronic affections. This can probably be best illustrated from examples in the human subject. Children are prone to have measles, scarlet fever, chicken pox, "mumps" and these are commonly known as children's diseases. A person may contract one of these diseases when they have arrived at maturity, but the chances of doing so are very greatly reduced. This is often ascribed to the fact that most persons have these troubles when young and therefore are protected against a second attack. The fact remains, however, that among persons who have escaped these diseases while young the power to resist an attack is greater than in the average child. To draw a like illustration from the lower animals we may cite the fact that sore mouth and joint diseases occur in very young pigs, cholera principally among the young, swine plague among pigs and those that are half grown, while swine plague attacks the old, half grown and older animals. It is not meant to convey the impression that these diseases may not occur at any age but that the large preponderance of all cases do occur at the time indicated and that there is a difference in resistive power at different ages independent of the effect of previous attacks.

Effect of Previous Attack.—Immunity results from an attack of some diseases. We can divide diseases into two classes upon this basis, those which do not tend to occur after one attack and those in which the tendency is but little or not at all diminished. In the diseases of the first class there are changes which take place in the body that protect it for a greater or less length of time and in some as long as the subject lives. In the second class these changes are so slight that they have only a temporary, if any, effect. The immunity thus acquired is not necessarily due to changes caused by the presence of the disease germs but may be due to the products which they produce. The products of the disease germs are called toxines. That the immunity which results from an attack of some disease is due to these poisons and not to the presence of the germs can be easily demonstrated. The germs may be grown in a suitable medium, as bouillon, and after they have grown for some time the material may be filtered and heated so that there will be no living germs present. This material will contain the toxine or poison produced by the germ and if injected into the body of a susceptible patient, first in small, and then gradually increasing doses it will be found that the patient will acquire immunity the same as that following an attack in the usual way. In this instance there has been no germs, and yet immunity results. The body has formed the same protective products to neutralize the poison introduced artificially as would have occurred if they had resulted from the growth of the germs in the body.

In the second class of diseases, there are no protective products formed, or if they are they are too weak to be effective.

It must also be borne in mind that different diseases attack the body in different ways and that the protective powers also differ. Some produce their effects through a poison or toxine as already cited and the resistance comes from the antitoxine formed. The two best known and most thoroughly studied diseases of this type are diphtheria and tetanus or lockjaw. Both the toxines and antitoxines are so well known that the latter is extensively used in the protection and cure, especially for diphtheria. Some diseases affect the body through the enormous multiplication of the germs. In this type there may be a product formed which tends to arrest this multiplication or there may be a special destructive activity on the part of certain cells especially the white blood corpuscles. The product which tends to prevent multiplication is known as a bacteriolysim. Bacteriolytic products are not so well known as antitoxines and not so successful in use. That most employed in medicine is antistreptococcus serum in the treatment of blood-poisoning.

The immunity gained as the result of an attack of a disease whether it be antitoxic, bacteryolitic or both is a naturally acquired immunity.

In the case of hog cholera we do know that a certain amount of immunity is acquired. A brood sow that has successfully withstood an attack of disease has an enhanced value because of the fact. The immunity which she has acquired is not transmitted to her offspring. It is an exceedingly desirable quality to be obtained in all, occurs in nature in so few, and at such great price that every known artificial method has been employed to induce it. These will now be considered in some detail.

Vaccination.—Since immunity results from an attack of some diseases and the immunity gained from a mild attack is protective the same as for a severe attack, attempts have been made to induce a mild form for protection. This was first done in connection with smallpox. The patient dieted and put in as healthy condition as possible and then the virus was taken directly from a patient, care being exercised to select one suffering from a mild form. This had the desired result in many cases but often caused death. Virus taken from a mild case might suddenly acquire increased virulence with fatal results. Later it was discovered that patients vaccinated with cowpox in a natural way in handling cattle were immune to smallpox and that those suffering from the cowpox had it in a very mild form compared with those vaccinated with smallpox. This led to the abandonment of the human virus and the substitution of the bovine material or cowpox. Sepsis and other serious complications often resulted at first, but the methods of preparing the virus, preserving, and using it, have been so greatly improved that it is now used with a feeling of safety. We now know that the cowpox and the smallpox are the same diseases but the passage of the disease through the cow reduces its virulence for the human subject. Likewise the immunity gained by the bovine virus is not so strong or so enduring as that from the human. The operation of vaccination consists of abrading or scratching the surface of the skin and rubbing in the virus. Vaccination has been tried for the prevention of hog cholera and swine plague but without the degree of success that is essential in practice.

The virus taken from infected hogs is not satisfactory and there is no other animal known to have the disease so that it may be modified by passage through a different body. Attempts to modify the virus by artificial means has likewise been a failure.

Inoculation.—Immunity may also be acquired by artificial means by a method popularly known as inoculation. In this method the virulence of the germs are reduced by artificial means. It has its best application in the prevention of blackleg. The tissues of an animal having died of blackleg are heated to such a degree as to nearly destroy all germs. A bit of tissue is then rubbed up with some sterile water, filtered and injected into a susceptible animal. The inoculation has the effect of producing a mild form of the disease which would suffice to protect against a natural infection. In localities where the danger is great an inoculation is first made with material that has been heated to a high degree, and after ten days again inoculated with material that has been heated but to a lesser degree but which if used in the first case would cause serious illness and possibly death in many cases. The first inoculation produces a slight immunity and the second greatly increases it.

Heating is not the only method of decreasing or attenuating the virulence of germs. It may also be accomplished by growing them in different media, and at different temperatures, for different periods of time, and by chemicals. All of these methods have been employed in securing a virus for protecting against hog cholera and, like vaccination, without success except in a comparatively limited number of cases. Both vaccination and inoculation are objectionable in that living germs are employed and in the event mild cases are induced the germs will be passed from the body and may become the center of infection for an epidemic in a herd or neighborhood.

Inoculation is also made by taking blood from an animal suffering with the disease and injecting it into a susceptible animal. This is the method used in immunizing against southern cattle fever. The dose is small. Attempts have been made to use the sterile serum from affected animals but without success. In the case of southern fever the hypodermic syringe takes the place of the tick, which does the same thing under natural conditions. By the artificial method the size of the dose is regulated. The same method has been tried with hog cholera.

Inoculation differs from vaccination in that the material is placed directly into the tissue of the body with a hypodermic syringe and not by scratching the surface.

Feeding.—Immunity may also be acquired by feeding small quantities of germs that have had their virulence reduced. The quantity and virulence are both gradually increased until the animal can successfully withstand what would ordinarily produce a serious or fatal illness. This method has been found successful in some experimental work and is used by a few breeders with apparent success. This is in reality at the basis of a method that has received a great deal of attention in the past few years. It was accomplished in a crude way by feeding swine on pieces of the carcass of one that had died of cholera. The quantity was gradually increased and the periods between the feeding shortened. The animals selected for the purpose were generally old ones whose resistance were already strong. Its use was especially recommended for breeding sows near the time of farrowing as it was believed that immunity would result in utero. The process was continued after farrowing to intensify the immunity through the effect on the mother's milk. The natural product not being always available and necessarily of variable character, cultures of the germs were substituted. As the practical application of the method is conducted on a commercial or trade basis, little is known of the uniformity of the virulence of the germs. It is even more objectionable than vaccination or inoculation in that there is sure to be infection of the premises and the possibility of making a center for an epidemic. The principle involved in this method is not a new one, it is only the application in a commercial way and the extensive advertising that has attracted attention.

Dead Cultures.—It has been found in the course of many experiments with disease germs that immunity may be acquired in some cases after the injection of dead germs.

For this purpose the germs are usually grown upon some solid media like agar agar, and when they have made a good growth they are scraped off by hand, dried and killed at as low temperature as possible. The germs are then macerated in sterile water and injected. This has been tried in almost every conceivable way, using all known and I might say all unknown media and at different temperatures. The material prepared after this manner is frequently called antitoxin and used for immunizing purposes. It is not a true antitoxin and does not cure nor prevent in the same way as antitoxin. There is probably some merit in the method the same as may be said for all. It has not been perfected to such a degree that it can be recommended.

In all the foregoing methods the object has been to develop in the body a substance or substances that will act as a protective agent for a considerable period of time. The object sought has been to produce such a mild form of the disease that a second attack will not occur even though an epidemic be present in the community. The immunity that would thus be acquired would be active. There still remains two other methods of securing immunity.

Antitoxin.—In some diseases the marked effects upon the body are due to the poison which the germs produce and not to the number of germs present. This is notably true of diphtheria and tetanus. After both of these diseases we find that the blood of the patient contains a substance known as antitoxin and has the power of neutralizing the toxine produced by the bacteria. This substance is so strong that blood may be taken from such a patient and if the serum be injected into the body of a patient exposed to the disease, or is found to be diseased, it will prevent or greatly lessen the severity of the attack. We take advantage of this fact and use the antitoxin in a very large percentage of cases with better results than any other known treatment. In the making of antitoxin for the treatment of diphtheria the horse is selected for providing the serum. A healthy animal is inoculated with a small dose of the toxin and as soon as it makes a recovery a little larger dose is given. This is repeated at short intervals for a period of from six to eight weeks. At the end of this period the animal will be able to stand a dose a hundred or more times greater than would have been tolerated at the first inoculation. The blood of such an animal will possess enormous immunizing power. When used upon the patient, however, it simply adds that property to the blood and does not cause its development in the body. The immunity conferred, lasts for only a short time, from four to eight weeks, or long enough to pass over a period of infection. A similar line of work has been done in connection with hog cholera and swine plague. The results have been interesting from a scientific standpoint rather than the practical. The cost in developing the serum, the care needed in its application and the short period of immunity conferred have all been against it. It was used in the government experiments, but only a few firms ventured into the production upon a commercial scale and none are in operation as far as known to the writer.

Toxin Method.—In this method the germs of the disease are grown in a suitable media like beef bouillon and when they have produced about all the poison they will, they are then filtered off and the poison is injected, first in a small and then in a large dose thus stimulating the body to produce its own antitoxin. This is the method used in developing a strong antitoxin in the horse's blood against diphtheria but it is not practical in its application to the treatment of millions of hogs on the farm.

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